654

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The University of the State of New York
New York State Museum

JOHN M. CLARKE, Director

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A REVISION OF THE PISAURIDAE OF THE UNITED STATES

(WITH SPECIAL REFERENCE TO THE NEW YORK SPECIES)

BY

SHERMAN C. BISHOP

CORNELL
Thesis Edition

PAGE

Dolomedes, 16, 30
albiclavius, 32, 56
albineus, 32, 33
fulviatronotatus, 32, 59
okefinokensis, 32, 33, 38
pinicola, 60
scriptus, 32, 33, 44
stristus, 32, 57
tenebrosus, 32, 33, 40
triton, 32, 33
sexpunctatus, 52
triton, 50
vittatus, 32, 33, 47
urinator, 32, 36
Pelopatis, 16, 20
undulata, 21

PAGE

Pisauridae, 7
characters of family, 7
descriptions of general and species, 16–63
family relationships, 9
key to genera, 16
list of species, 11
references to literature, 10
subdivisions, 16
Pisaurina, 16, 22
brevipes, 23, 29
mira, 23
var. subinflata, 28
Thanatidius, 16
dubius, 17
tenuis, 18
Thaumasia, 16, 61
peregrinus, 62

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A Revision of the Pisauridae of the United States

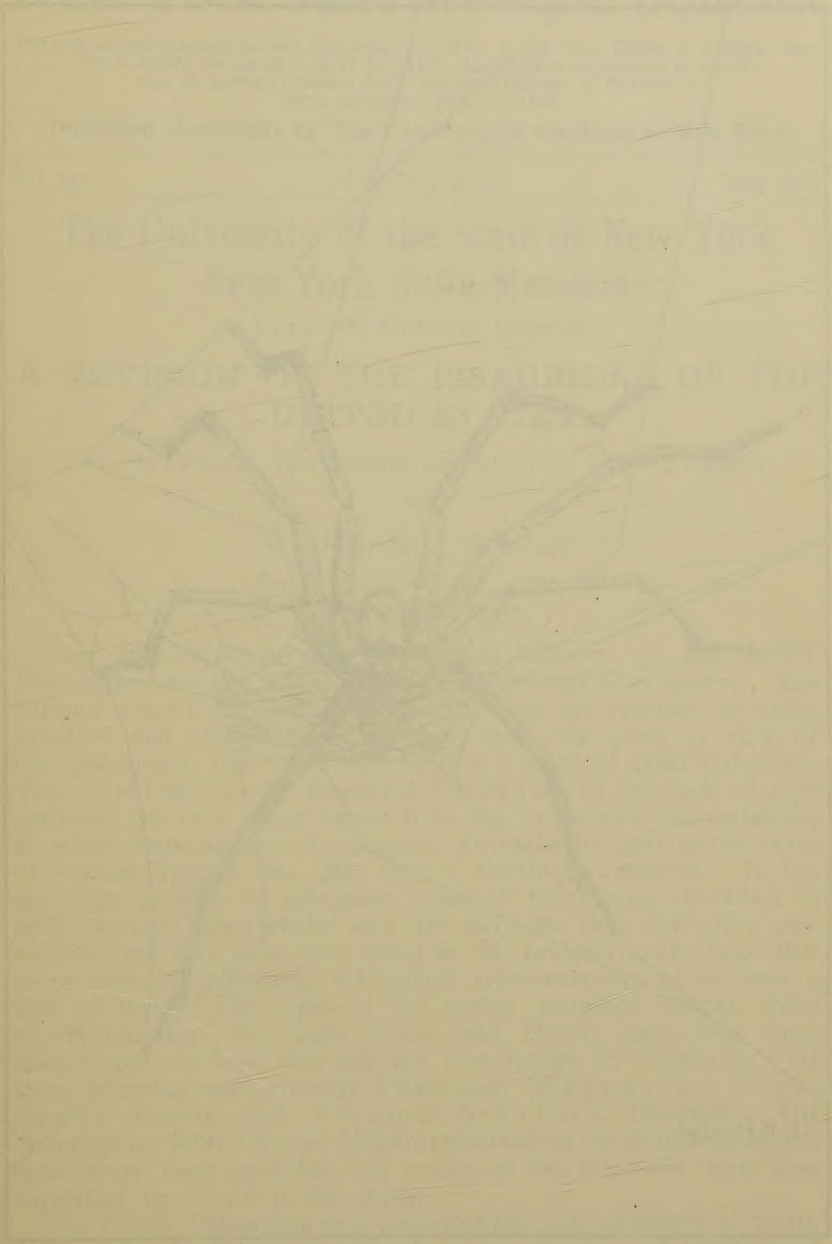
(With Special Reference to the New York Species)

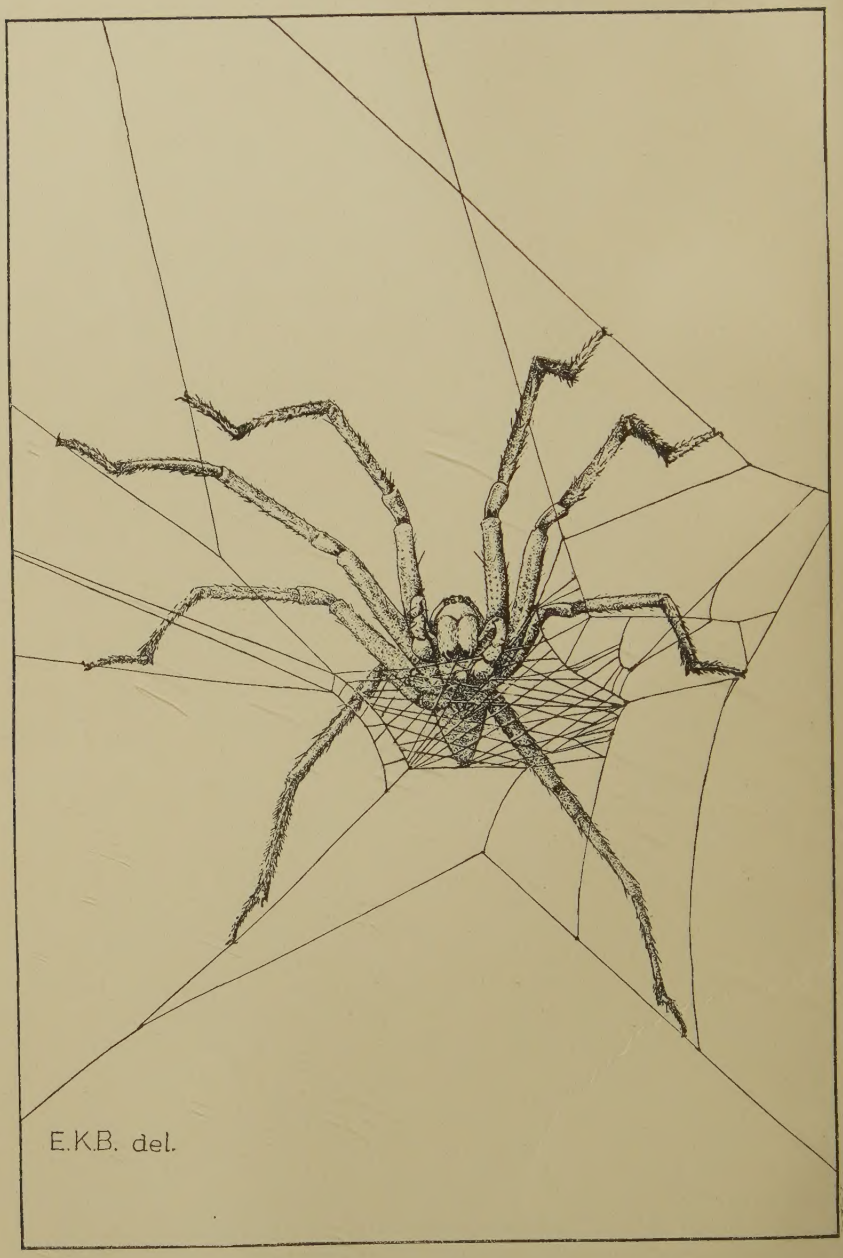
A THESIS

PRESENTED TO THE FACULTY OF THE GRADUATE SCHOOL OF CORNELL UNIVERSITY FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

BY

SHERMAN CHAUNCEY BISHOP





Pisaurina mira (Walckenaer)

In the process of sperm induction the male constructs a small, vertical web, deposits the spermatic fluid in a small drop near the top and, after moving to the opposite side, takes up the sperms by reaching over the top of the web and applying the palpi alternately.

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A REVISION OF THE PISAURIDAE OF THE UNITED STATES

(WITH SPECIAL REFERENCE TO THE NEW YORK SPECIES)

BY

SHERMAN C. BISHOP

INTRODUCTION

This important group, scientifically known as the family Pisauridae, includes some of the largest of our true spiders. The various species are widely distributed; they are common in many localities and often conspicuous but, from the point of view of the systematist, they have long been in a state of great confusion. This condition may be accounted for in part by the lack of type material, but to a larger extent it is due to the extreme variability to which many species are subject. Disparity of sizes in the sexes of certain species has also been a disturbing element. It has not been possible to recognize some of the species described in early accounts where color and size were the only characters considered; but they have been listed in this revision in the hope that more intensive collecting will reveal representatives of at least a few of them. The types of the earlier described species, those of Walckenaer, De Geer, Koch, and Hentz, have long since disappeared; at least they are not now known in collections. Of those described more recently, I have seen *Maypacius floridanus* Simon, and *Pisaura brevipes* Emerton. The drawings by John Thomas Abbott, preserved in the British Museum, have never been published but copies of the pisaurids have been furnished me for use in this study.

The family Pisauridae is a cosmopolitan one composed of thirty odd genera distributed most freely in the tropical and semitropical regions but strongly represented in the temperate zones by several well-defined genera. Of the five genera and seventeen species here recognized from America north of Mexico, one genus is new and one reported for the first time. Four of the seventeen species recorded are new.

ACKNOWLEDGMENTS

The chief source of materials has been the splendid collection of the department of entomology at Cornell University, which was placed unreservedly at my disposal through the kindness of Professor C. R. Crosby. I am also particularly indebted to Professor Crosby for his continued interest in this report and critical examination of the manuscript. For the use of the valuable series of specimens in the Museum of Comparative Zoology at Cambridge, my thanks are due Dr R. V. Chamberlin, Mr Samuel Henshaw and Mr Nathan Banks. Dr F. E. Lutz of the American Museum, New York, Dr. J. M. Aldrich and Mr H. E. Ewing of the National Museum and Dr Eugene A. Smith of the University of Alabama kindly loaned the specimens placed in their care. Smaller collections have been received from Mr J. H. Emerton of Boston, Dr Frank N. Blanchard of the University of Michigan, Dr Charles P. Alexander of the Massachusetts Agricultural College, Dr S. J. Hunter of the University of Kansas and Mr William Barrows of the Ohio Biological Survey. Dr A. H. Wright and Mr Francis Harper of the department of zoology, Cornell University, collected and contributed a valuable series of Dolomedes from the Okefinokee swamp, Georgia. The private collection of Mr C. R. Shoemaker of Washington, D. C., is rich in pisaurid material collected chiefly in the District of Columbia and Virginia. Dr L. Berland and M. Eugene Simon of the National Museum of France sent to me for examination the type, and at the time, the only known specimen of *Maypacius floridanus*. My own collections have been made chiefly in various parts of New York State and Georgia, and the specimens are deposited in the New York State Museum. My former assistant, Miss Fanny T. Hartman, and local collectors, Mr W. J. Schoonmaker of Rensselaer and Mr Hugh P. Chrisp of Albany, have contributed valuable specimens and observations.

My thanks are also due Professor J. H. Comstock for permission to use the splendid photograph of *Pisaurina mira* on her nursery.

With two exceptions, the drawings accompanying the report are the work of Anna Clegg Stryke of Pasadena, Calif., who is not only an artist of exceptional ability but an accomplished student of aranean anatomy.

THE FAMILY PISAURIDAE

Characters of the family. The characters enumerated below apply to the family as it is represented in faunal area under consideration:

Cephalothorax longer than broad, somewhat constricted in the cephalic region; dorsal groove well defined, radial grooves less prominently marked; eyes eight, those of the anterior row noticeably smaller than the others except in Pelopatis and Thanatidius where they are almost equal; anterior row straight, recurved or procurved; abdomen regularly oval (Dolomedes and Thaumasia), moderately long (Pisaurina), or long and narrow (Thanatidius and Pelopatis); spinnerets in a compact group at the end of the abdomen; the pedicle short with its superior lorum composed of two median segments and a pair of accessory lateral sclerites; median segments united by a transverse suture in Pisaurina, the anterior segment notched behind to receive a projection of the posterior segment in Dolomedes, or as in Pelopatis, Thanatidius and Thaumasia, the anterior segment is gently rounded behind and fits the shallow excavation of the posterior segment. The relation of the median segments in the genera last named approaches the condition found in the genus Lycosa; but the lateral accessory sclerites are differently developed. In Lycosa, the lateral pieces are confined to the sides of the posterior median segment while in the pisaurids they extend along the sides of the anterior segment as well, sometimes, as in Pelopatis and Thanatidius, less than one-half its length or as in Thaumasia, its entire length. Corresponding to the general body development, the legs are relatively strong in Dolomedes and Thaumasia, less robust in Pisaurina, and long and slender in Pelopatis and Thanatidius; tarsi provided with three variably toothed claws. Tibiae of the pedipalps of the males provided with an external apophysis. The structure of the palpal organ of a typical pisaurid may be understood by reference to the accompanying figure (1) on which (following the terminology of Comstock) the parts are named.

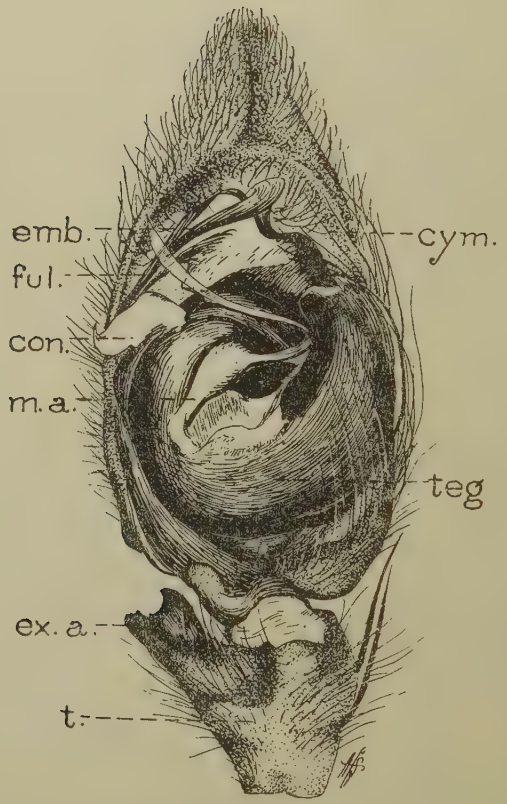

Fig. 1 Unexpanded bulb of Dolomedes tenebrosus Hentz. The tibia (t) is short and thick and bears an external apophysis (ex.a); the body of the tarsus or cymbium (cym) is concave internally and partially incloses the genital bulb and its accessory appendages; the tegulum (teg.) is a heavily chitinized sclerite forming part of the wall of the genital bulb and contains the receptaculum seminis; the tegulum bears an appendage, the median apophysis (m.a.), slender and semi-transparent in this species but well developed and stout in other species of the genus. The conductor (con) is membranous, attached to the middle division of the bulb and lies below the tip of the grooved fulcrum (ful) which in turn supports the tip of the embolus (emb).

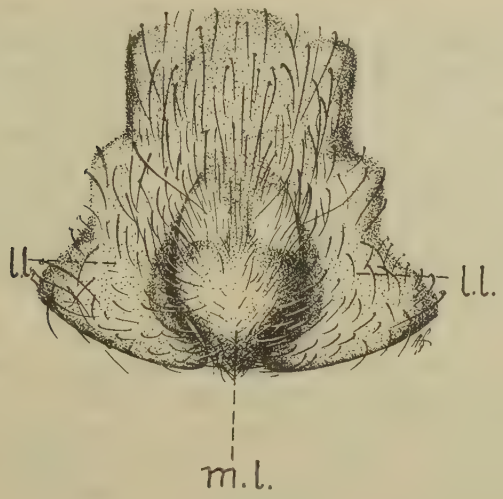

Fig. 2 Epigynum of Dolomedes trition (Walckenaer).

In the Pisauridae the epigynum is well developed and consists of three parts; a median lobe or guide (m.l.) and more or less well developed lateral lobes (l.l.–l.l.) with chitinized inner margins. The openings of the internal reproductive organs are concealed by the inner margins of the lateral lobes and are reached by the curved embolus of the male.

In some species, D. tenebrosus and D. okefinokensis, the median lobe is highly developed and forms the larger part of the epigynum; in others, D. scriptus, D. albineus etc., it is inclosed by the lateral lobes which unite across the front and converge posteriorly.

Family relationships. The pisaurids have as their nearest relatives in North America the spiders of the families Lycosidae and Agelenidae. They have only recently been separated from the former although the arrangement of the eyes and possession of the tibial apophysis immediately distinguishes them. The members of both the Pisauridae and Lycosidae have the distal margin of the trochanters broadly notched beneath, a characteristic lacking in the Agelenidae. In the Agelenidae the hind spinnerets are usually longer than the fore, and sheet webs are laid for the capture of prey. The pisaurids in our fauna capture their prey by stalking, and confine their use of silk to the drag line, egg sac and nursery web.

The pisaurid egg sac has a continuous covering of silk and is carried in the chelicera; that of the Lycosidae is composed of two valves and is dragged from the spinnerets until the young are hatched and, in some cases, transferred to the back of the mother.

The young of many spiders develop from eggs neglected by the mother after deposition, but with the pisaurids the egg sac is not only protected but a web is spun for the use of the young until they have developed sufficiently to look after themselves. The females of Dolomedes spin the nursery web only when the young are beginning to emerge from the sac but Pisaurina mira fashions a retreat of leaves and silk, suspends herself with her sac to await development of the eggs, and expands the nursery by adding lines when the young emerge. Nothing is known of the breeding habits of Pelopatis and Thanatidius.

Most of the species are found in the vicinity of water, hiding under stones or rubbish, stalking insects among the herbage along shore or running freely over the surface of ponds or slow streams. Some commonly take refuge beneath the surface when pursued and cling to submerged vegetation. Structural modifications such as a brush of soft hairs on the ventral surface of the terminal segments of the legs to permit surface navigation, and the hairy investment of the body for entangling air when submerged, have accompanied the adoption of the semi-aquatic habit.

References to literature. The genera constituting the family Pisauridae were formerly distributed among other families, those of America chiefly in the Lycosidae but, in the case of Pelopatis and Thanatidius, in a separate group — the Podophthalmidae. Some references to the earlier literature are given below, and include accounts of American genera described under various families.

Lycosoidae **Thorell,** On European Spiders, Upsala, 1869, pp. 188–195
Lycosoidae **Keyserling,** Verh. K. K. Zool. Bot. Ges. Wien, 1876, 26:610–680, pls. 7–8
Lycosidae **Simon,** Les Arachnides de France, 1876, 3:223–360; v. 4, 1878, pls. 12–13
Lycosidae **Thorell,** Synonyms of European Spiders, Upsala, 1870–1873, pp. 271–355
Lycosidae **Emerton,** Tran. Conn. Acad. 1885, 6:481–505, pls. 46–49 — Includes Dolomedes, Ocyale etc., with typical Lycosidae.
Lycosidae **Marx,** Proc. U. S. Nat. Mus., 1890, 12:560–566. Dolomedes and Ocyale.
Podophthalmidae **Marx,** Ibid, p. 567. Thanatidius dubius etc.
Lycosidae **Stone,** Proc. Acad. Nat. Sci. Phila., 1890, 42:420, pl. 15, fig. 8
Lycosidae **Banks,** Can. Ent. 1892, 24:97 (Dolomedinae)
Pisauridae **Simon,** Hist. Nat. des Araignées, 2d ed., 1898, 2:278–316, figs. 284–326
Lycosidae **Emerton,** The Common Spiders of the U. S., Boston, 1902, p. 67
Lycosidae **Montgomery,** Proc. Acad. Nat. Sci. Phila., 1902, 54:534–592
Pisauridae **Comstock,** A Classification of N. Amer. Spiders, Ithaca, 1903, pp. 50–51

Pisauridae **Banks,** Amer. Nat., 1905, 39:318.
Pisauridae **Bryant,** Occ. Papers Bost. Soc. Nat. Hist., 7, 1908, p. 79
Pisauridae **Banks,** U. S. Nat. Mus. Bul. 72, 1910, p. 53
Pisauridae **Petrunkevitch,** Bul. Amer. Mus. Nat. Hist., 1911, 29: 539–549
Pisauridae **Comstock,** The Spider Book, N. Y., 1912, pp. 598–617, figs. 683–710

List of species. The species described or mentioned by various writers and assigned to the family Pisauridae are listed below; some have been found to belong in other families and in these cases the synonymy has been noted.

Species of De Geer

Mem. L'Hist. des Insectes, 1778, v. 7

Aranea rufa, p. 319, pl. 39, fig. 6. Regarded by Banks (Ent. News, 1898, 9:142) and Petrunkevitch (Bul. Amer. Nat. Hist., 1911, 29:541–542) as identical with Hentz's Dolomodes albineus. The description is insufficient for identification, the figure is useless and the locality, Pennsylvania, is too far north for this distinctively southern spieces. (See remarks under account of Dolomedes albineus Hentz.)

Species of Walckenaer

Hist. Nat. des Insectes Apt., 1837, v. 1

It has been the general practice to regard Walckenaer's species as invalid because they were believed to be based entirely on the unpublished drawings of Abbot. In some instances however there is direct evidence that specimens as well as the drawings were before the author and in such cases (provided the species can be recognized) Walckenaer's names are used.

Lycosa triton, p. 340. Petrunkevitch[1] was the first to point out the identity of this species with Dolomedes sexpunctatus Hentz. It is the "water spider" of Abbott, pl. 19, fig. 91.

Dolomedes vittatus, p. 347. This is the female of the species described by Hentz as Dolomedes lanceolatus. Abbot, pl. 5, fig. 21.

Dolomedes lineatus, p. 347. Two varieties are mentioned by Walckenaer (Abbot, pl. 11, fig. 51, "varieté jaune," and pl. 12, fig. 56, "varieté rouge"). The first variety, fig. 51, is very likely Lycosa rabida Walckenaer. The species represented in the second variety fig. 56, may be, according to the opinion of Professor R. V. Chamberlin, Lycosa punctulata Hentz.

[1] Ann. N. Y. Acad. Sci., 1910, 19:219–220.

Dolomedes rufus, p. 351. Walckenaer had at least two specimens before him and in addition, Abbot's four figures; these he regarded as representing varieties of the single species and identical with De Geer's Aranea rufa. Two of the drawings bear no resemblance to any known American species and the other two can not be placed with any certainty. Walckenaer's description in itself is insufficient for purposes of identification.

Dolomedes mirus, p. 357. This species was selected by Simon as the type of the genus Pisaurina. Abbot (pl. 65, fig. 321) represents an immature male with the legs rather short and the color pattern quite unlike any of the familiar varieties. In the description however—and Walckenaer must have had specimens before him—the species is likened to Pisaura (Dolomedes) mirabilis of Europe, Africa etc., a form not unlike our species in color pattern.

Dolomedes virgatus, p. 358, Abbot, pl. 59, fig. 291. This is Pisaurina mira Walck.

Species of Koch

Die Arachniden, 1848, v. 14

Ocyale rufa, pp. 112–114, tab. 483, fig. 1349. Under the generic name Ocyale, Koch described and gave a figure of a specimen which he believed to represent Aranea rufa of De Geer and Dolomedes rufus of Walckenaer. I have been unable to place this species which resembles in a slight degree the Dolomedes scriptus of Hentz but lacks entirely the distinctive characters of D. albineus.

Dolomedes oblongus, p. 114, pl. 484, fig. 1350. Now placed by Petrunkevitch in Diapontia of the Lycosidae.

Dolomedes scapularis, pp. 119–120, tab. 486, fig. 1354. Here considered a synonym of Dolomedes triton Walckenaer but recorded doubtfully, by Cambridge[1], in Thaumasia.

Dolomedes binotatus, pp. 121–122, tab. 487, fig. 1356. A large yellowish-brown species with a pair of black spots on the back of the abdomen in Koch's figure. No specimens have been found in the United States that agree with the description or figure. Cambridge loc. cit. places it doubtfully in Thaumasia.

Dolomedes aerugineus, pp. 122–123, tab. 487, fig. 1357[2]. This species is recorded from "Amerika" so probably not from the United States. It is represented as being uniform yel-

[1] Proc. Zool. Soc., London, 1903, 73:154
[2] See Banks. Jour. N. Y. Ent. Soc., 1901, 9:186.

lowish or reddish-brown and quite different from any of the familiar American species.

Dolomedes marginellus, p. 120, tab. 486, fig. 1355. Petrunkevitch[1] following Simon, places this in the genus Thaumasia. Specimens, apparently of this species, from Cuba have four teeth in the lower margin of the furrow of the chelicera and other characters of the genus Dolomedes. It has not been recorded from the United States.

Species of Hentz

Bost. Jour. Nat. Hist., 1844, v. 4

Dolomedes tenax, p. 395, pl. 19, figs. 7–8. A small species described from specimens taken in North Carolina. It is unknown in collections and may prove to be the young of some species described under another name.

Dolomedes hastulatus, pp. 395–396, pl. 19, fig. 9. Another small species said to have been found in September in a web resembling that of Agelena. Perhaps not a pisaurid although the figure gives the general proportions of Dolomedes with an indication of the pattern of D. albineus.

Dolomedes tenebrosus, p. 396, pl. 19, figs. 10, 13. A common species both in the north and south and perfectly distinct from D. scriptus with which it has sometimes been confused. It is closely related to a species which I have described as new from the Okefinokee swamp in Georgia but differs sufficiently in the various structures to enable it to be immediately distinguished.

Bost. Jour. Nat. Hist., 1845, v. 5

Dolomedes scriptus, p. 189, pl. 16, fig. 1. Dolomedes fontanus Emerton is a synonym. The figure given by Hentz shows the characteristic color pattern of the abdomen.

Dolomedes albineus, pp. 189–190, pl. 16, fig. 2. Described from Alabama. The male has not been figured heretofore.

Dolomedes urinator, pp. 190–191, pl. 16, fig. 3. Long considered to be the female of the species described by Hentz under the name of Dolomedes lanceolatus; now believed to be distinct The male is unknown.

Dolomedes lanceolatus, p. 191, pl. 17, fig. 12. A synonym of Dolomedes vittatus Walckenaer.

Dolomedes sexpunctatus, pp. 191–192, pl. 16, figs. 5–6. Here regarded as a subspecies of Dolomedes triton Walckenaer.

[1] Bul. Amer. Mus. Nat. Hist., 1911, 29:547.

Thomisus? dubius, p. 448, pl. 23, fig. 11. Placed by Simon in the genus Thanatidius.

Thomisus? tenuis, p. 449, pl. 23, fig. 12. Apparently the species described by Simon as Maypacius floridanus. Goes in Thanatidius.

Micrommata undata, pp. 192–193, pl. 16, fig. 7; M. serrata, p. 193, pl. 16, fig. 8; M. marmorata pp. 193–194, pl. 17, fig. 5; M. carolinensis p. 194, pl. 16, fig. 9. Synonyms of Pisaurina mira Walckenaer.

Bost. Jour. Nat. Hist., 1850, v. 6

Micrommata subinflata, p. 288, pl. 10, fig. 13. A color variety of Pisaurina mira Walckenaer.

Micrommata pinicola, p. 287, pl. 10, fig. 14. Banks collected an immature spider at Punta Gorga, Fla., which agrees so well with the description and figure of Hentz that there is little doubt of its identity. It was placed in the genus Thaumasia in Banks' catalog[1] but earlier recorded[2], provisionally, as an immature Dolomedes albineus. Comstock[3] regarded it as belonging in Dolomedes and it is so considered in this revision.

Species of Giebel

Zeitschr. fur die Ges. Natur., 1869, v. 33

Dolomedes striatus, p. 252. Placed as synonym of D. tenebrosus by Petrunkevitch but is here regarded as a distinct species.

Dolomedes convexus, pp. 252–253. A small species from Illinois which I can not now place. Lacks the distinctive characters of Dolomedes triton Walck., with which it was placed by Petrunkevitch.

Species described or mentioned by Emerton

Tran. Conn. Acad., 1885, v. 6

Ocyale undata, p. 499, pl. 49, figs. 7, 7*a*. Equals Pisaurina mira Walckenaer.

Dolomedes sexpunctatus, p. 501, pl. 49, figs. 8, 8*a*. Here regarded as a subspecies of Dolomedes triton Walckenaer.

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[1] Bul. 72 U. S. Nat. Mus., 1910, p. 54.
[2] Proc. Acad. Nat. Sci. Phila., 1904, p. 136.
[3] The Spider Book, N. Y., 1912, p. 617.

Dolomedes tenebrosus, p. 501, pl. 49, figs. 9, 9*a*, 9*b*, 9*c*. Figures 9*a* and 9*b* represent the palpal organ and tibial apophysis of Dolomedes vittatus Walckenaer; figure 9*c* is the epigynum of Dolomedes scriptus Hentz.

Tran. Conn. Acad., 1909, v. 14

Dolomedes idoneus, p. 211, pl. 7, fig. 8. This is Dolomedes tenebrosus Hentz.

Dolomedes vernalis, pp. 211, pl. 7, figs. 7–7*d*. Figure 7 represents the male and 7*b* the epigynum of Dolomedes tenebrosus.

Dolomedes sexpunctatus, p. 210, pl. 7, figs. 6, 6*a*, 6*b*. I am inclined to believe that figure 6 represents an immature female of Dolomedes striatus Giebel; at least it has the markings of this species. Figures 6*a* and 6*b* represent the palpal organ and dorsal aspect of Dolomedes triton Walck.

Species of Keyserling

Verh. Zool. Bot. Ges. Wien., 1887, 37:486, pl. 6, fig. 42

Tetragonophthalma undulata. This species does not belong in Tetragonophthalma nor in Thanatidius of which T. dubius Hentz is the type. It is regarded in this revision as the type of a new genus.

Species described or mentioned by Simon

Annales de la Société Entomologique de Belgique, 1898, 42:14

Maypacius floridanus Simon is very probably the species described by Hentz as Thomisus tenuis. Goes in the genus Thanatidius.

Hist. Nat. Araignées, 1898, 2:293

Thanatidius dubius. Simon selected Thomisus dubius Hentz as the type of the genus Thanatidius but gave a description of the species earlier described by Keyserling as Tetragonophthalma undulata. Keyserling's species did not belong in Tetragonophthalma and Simon's name (Thanatidius) must be retained because the type (Thomisus dubius Hentz) was designated.

Species described or mentioned by Montgomery

Proc. Acad. Nat. Sci. Phila., 1902

Ocyale undata, p. 584, equals Pisaurina mira Walckenaer.

Dolomedes idoneus, pp. 588–590, pl. 30, fig. 51. The figure of the epigynum shows this to be Dolomedes tenebrosus Hentz.

Subdivisions of Pisauridae. Simon separated the Pisauridae into three rather ill-defined groups designated respectively the Pisaureae, Thalassieae and the Dolomedeae. The first embraced a considerable number of genera distinguished by having the median ocular area slightly longer than broad posteriorly and the tarsi generally provided with an onychium. But in the three American genera included in Pisaureae, Pelopatis has this area broader posteriorly than long and in Thanatidius and Pisaurina the dimensions are about equal.

In structure of the epigynum and palpus, closer agreement is found and upon these characters, rather than eye arrangement, subfamily distinctions may possibly be made. Based on the structure of the sexual organs, the genera named above would fall in one group and Dolomedes and possibly Thaumasia in a second; Thalassieae has no representatives in America north of Mexico.

Key to the Genera of Pisauridae

A Eyes in two rows; width of clypeus at least twice the diameter of an anterior median eye
  B Lower margin of the furrow of the chelicera with three teeth
    C Median ocular area about as wide posteriorly as long; teeth evenly spaced PISAURINA
    CC Median ocular area much wider posteriorly than long; two teeth close together, the third somewhat remote THAUMASIA
  BB Lower margin of the furrow of the chelicera with four teeth DOLOMEDES
AA Eyes in 3 or 4 rows; clypeus narrow or obliterated
  B Line of anterior lateral eyes (first row) about equal in width to that of posterior median eyes (third row) THANATIDIUS
  BB Line of anterior lateral eyes (first row) much wider than that of posterior median eyes (third row) PELOPATIS

THANATIDIUS (Simon)

Hist. Nat. Araignées, 1898, 2:293

Cephalothorax longer than broad, somewhat depressed; cephalic part up to posterior eyes, ascending; broad and flat behind posterior eyes to posterior declivity. *Eyes* in four rows, the total area not quite as long as broad posteriorly; line of anterior lateral eyes (first row) scarcely wider than line of posterior medium eyes (third row); area outlined by four median eyes a little wider posteriorly than long; area of four anterior eyes considerably wider anteriorly than long; anterior lateral eyes on stout conical tubercles projecting from anterior margin of head. Lower margin of furrow of chelicera with three teeth. *Abdomen* long and slender. Legs 1-2-4-3; tibia of first and second legs beneath with 2-2-2-2 spines, apical pair reduced; metatarsi with 2-2-2-2 spines beneath, apical short.

The genus Maypacius Simon is related but differs in having two teeth on the lower margin of the furrow of the chelicera, the area of the four median eyes longer than wide and the area of the four anterior eyes hardly wider than long.

Type of the genus: Thomisus dubius Hentz.

Maypacius Simon, Hist. Nat. Araignées, 1898, 2:288, 292 (ad part)
Maypacius Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 54
Maypacius Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:544
Maypacius Comstock, The Spider Book, N. Y., 1912, p. 605

Key to the Species of Thanatidius

A Lateral lobes of epigynum broadly in contact on the middle line behind; median lobe rectangular, deeply notched behind T. dubius (Hentz)
AA Lateral lobes of epigynum narrowly in contact on middle line behind; median lobe long and narrow T. tenuis (Hentz)

Thanatidius dubius (Hentz)

Bost. Jour. Nat. Hist., 1847, 5:448, pl. 23, fig. 11

Type: Thomisus? dubius Hentz; type specimen not known to exist
Type locality: North Carolina
Female (alcohol): length 9 mm; legs 1-2-3-(4th missing), 22-21-16-(?) mm; pl. 1; pl. 33, fig. 2, epigynum.

Cephalothorax above with a broad, median light brown band, clothed with short, light brown hair; the band incloses the eyes and extends entire length of cephalothorax; back of posterior eyes an oval area lighter, with a narrow, line like extension through the dorsal groove; sides of cephalothorax light yellowish white clothed with white hairs; extreme margin with a fringe of white; a pencil of long, white hairs extending forward between median eyes. *Eyes* equal in size or nearly so except posterior lateral which are slightly larger; triangle of four anterior eyes, wider in front than long; anterior lateral eyes separated by about twice the diameter of one of them and slightly farther apart than posterior median. *Chelicera* yellowish white spotted irregularly in front with black; lower margin of the furrow with three teeth. *Abdomen* above with a broad median band, dark brown, clothed with short, brown hairs and narrowly margined with white; a broad band yellowish white and bearing white hairs each side of median dark band; venter of abdomen with sides light brown; back of epigastric furrow dusky yellow with two dark lines extending from epigynum half way to spinnerets. *Legs* long, slender, light yellowish brown above, dusky beneath with small scattered spots of dark gray; coxae of third and fourth legs darker than those of first and second pairs; *Sternum* dark gray with light yellow border and stripe through middle of anterior half. *Epigynum* (pl. 33, fig. 2) prominently raised on epigastrium, heavily chitinized; median lobe convex and notched behind, lateral lobes broadly in contact posteriorly. Male unknown.

Synonymy

Thomisus? dubius Hentz, Bost. Jour. Nat. Hist., 1847, 5:448, pl. 23, fig. 11
Thomisus? dubius Hentz, Proc. Bost. Soc. Nat. Hist., 1868, 11:106
Thomisus? dubius Hentz, Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, p. 82, pl. 10, fig. 11
Thanatidius dubius Simon, Hist. Nat. Araignées, 1898, 2:288, 293
Thanatidius dubius, Banks, Proc. Acad. Nat. Sci. Phila., 1900, 52; 539

Remark. Simon designated Thomisus dubius Hentz as the type of the genus Thanatidius but the diagnosis he gives does not correspond to the characters of the type as described and figured by Hentz. The characters given in Simon's definition of the genus were very evidently based on a specimen of Tetragonophthalma undulata Keyserling, a species perfectly distinct but not belonging in Tetragonophthalma and therefore in this revision, made the type of a new genus.

T. dubius and T. tenuis have been very generally regarded as identical; they resemble one another in general proportions and arrangement of the eyes but differ in size, in the structure of the epigynum, and development of the color pattern. A mature female collected by Nathan Banks at Auburn, Ala., and recorded in the Proc. Acad. Nat. Sci. Phila., 1900, 52:539, is T. dubius.

Distribution. North Carolina, *Auburn, Ala.; *Washington, D. C.

Thanatidius tenuis (Hentz)

Bost. Jour. Nat. Hist., 1847, 5:449, pl. 23, fig. 12

Type: Thomisus? tenuis Hentz; type specimen not known to exist
Type locality: Alabama
Female (alcohol): Length 8mm; legs 1-2-4-3; pl. 2, figs. 1-5

Cephalothorax dull yellowish above, lighter on the cephalic part and in front of the dorsal groove; between the median eyes a prominent brush of long, white hairs extending forward; sides of cephalothorax sparsely covered with short, yellowish brown hairs in patches. *Eyes* (pl. 2, fig. 2) almost of equal size, the posterior lateral slightly larger; four anterior eyes form a triangular area one and one-half wider anteriorly than long; anterior lateral eyes protuberant from anterior margin of head thus obliterating the clypeus; anterior lateral margins of the head prominently angled; transverse space occupied by the anterior lateral eyes only a little wider than that of posterior median eyes. *Chelicera* yellowish white spotted in front with black; lower margin of furrow armed with

* This character indicates that specimens have been examined from localities mentioned.

three teeth (pl. 2, fig. 5); (the third in Simon's specimen somewhat reduced). *Abdomen* above with a median dusky band widest in front, tapering to spinnerets; on each side of median band near base, a small, dark spot; ground color bordering median band yellow with darker reticulations and a row of small, irregular, black spots along the sides; venter behind genital furrow reticulated as above. *Legs* above dusky yellow, gray or black beneath except coxae which are spotted. *Sternum* gray with a median light line and irregular marginal bands of yellow. *Labium* and endites dusky yellow spotted with black, lighter distally. The *epigynum* (pl. 2, fig. 1) resembles that of Pelopatis undulata (Keyserling). Male not known.

Synonymy

Thomisus? tenuis Hentz, Bost. Jour. Nat. Hist., 1847, 5:449, pl. 23, fig. 12
Thomisus? tenuis Hentz, Proc. Bost. Soc. Nat. Hist., 1868, 11:106, figs. 84, 101
Thomisus? tenuis Hentz, Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, p. 82, pl. 10, fig. 12; pl. 18, figs. 84, 101
Maypacius floridanus Simon, Ann. Soc. Ent. Belgique, 1898, 42:14
Maypacius floridanus Simon, Hist. Nat. Araignées, 1898, 2:288
Thanatidius tenuis Simon, Hist. Nat. Araignées, 1898. 2:293
Maypacius floridanus, Banks, Bul. 72, U. S. Nat. Mus., 1910, p. 54
Maypacius floridanus, Banks, Proc. Acad. Nat. Sci. Phila., 1904, 56:136
Maypacius floridanus, Comstock, The Spider Book, N. Y., 1912, p. 605
Maypacius floridanus, Banks, Proc. Acad. Nat. Sci. Phila., 1913, 65:181, pl. 12, fig. 30

Remarks. Through the courtesy of M. Simon and Dr L. Berland of the Museum National D'Histoire Naturelle at Paris, I have been permitted to examine the type of Maypacius floridanus and to compare it with immature specimens of the same size from Alabama and Georgia. I am convinced that it is the same as Thomisus tenuis Hentz.[1] In Simon's definition of the genus Maypacius, of which M. vittiger Simon is the type, it is stated, "Chelarum margo inferior tantum bidentatus" (Hist. Nat., 2:293). In the type specimen of M. floridanus, however, and in several specimens from Alabama and Georgia compared with the type, there are three teeth. Simon also states: "Oculi quatuor medii inter se subaequales et aream longiorem quam latiorem occupantes;" but in his specimen and mine this area is considerably broader posteriorly than long.

[1] Bost. Jour. Nat. Hist., 1847, 5:449, pl. 23, fig. 12.
Proc. Bost. Soc. Nat. Hist., 1868, 11:106, figs. 84, 101.

Maypacius vittiger Simon is an African species and has been reexamined at my request by M. Louis Fage of the Paris Museum. In this species there are but two teeth on the lower margin of the furrow of the chelicera and the area of the four median eyes is longer than wide. M. floridanus therefore, can not be regarded as congeneric with Maypacius vittiger and is transferred to the genus Thanatidius.

Habits. Nothing is known of the habits of this species except that the female is mature in June in the Okefinokee swamp, Georgia.

Distribution. *Florida, *Billy's island, Okefinokee swamp, Ga.; *Holt, Tuscaloosa county, *Epes, Sumter county, Ala.; *Baton Rouge, La.

PELOPATIS nov. gen.

Generic characters. *Cephalothorax* considerably longer than broad, depressed. *Eyes* in four rows; total area of eyes slightly broader than long; line of anterior lateral eyes (first row) at least twice as wide as line of posterior median eyes (third row); almost as wide as line of posterior lateral eyes (fourth row) pl. 4, fig. 2; area outlined by four anterior eyes almost 3 times as broad anteriorly as long. Median ocular area very slightly broader posteriorly than long or equal. *Abdomen* long and slender with a median, basal, lanceolate spot, on each side of which near the middle of its length, is a small, black spot. Lower margin of the furrow of the chelicera with three teeth (pl. 4, fig. 4). *Legs* 1-4-2-3; tibiae of first and second legs beneath with 2-2-2-2-2 spines, four pairs extremely long and overlapping; apical pair reduced and sometimes missing; metatarsi of first and second legs beneath with 2-2-2-2 spines; apical pair short. *Sternum* longer than broad, produced posteriorly between coxae of fourth legs.

Type. Tetragonophthalma undulata Keyserling

Thanatidius[1] Pickard-Cambridge, Proc. Zool. Soc. London, 1903, 73:156
Thanatidius Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 54
Thanatidius Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:547
Thanatidius Comstock, The Spider Book, N. Y., 1912, p. 605

[1] F. Pickard-Cambridge (Proc. Zool. Soc. London, 1903) questioned the identity of Thanatidius in note 2, p. 153, as follows: "One can not be quite certain that Thanatidius has been correctly identified." On page 156, the description of the eyes of Thanatidius spinipes makes it appear that the anterior row is much wider than the posterior. The description refers to the figure (pl. 14, fig. 10) which is apparently reversed on the plate. When turned right side up, the eyes appear as they are in Pelopatis undulata (Keyserling).

Pelopatis undulata (Keyserling)

Verh. Zool. Bot. Ges. Wien., 1887, 37:486, pl. 6, fig. 42

Type. Tetragonopthalma undulata Keyserling; type specimen not known to exist

Type locality: Archer, Fla. (Marx collection)

Female (alcohol). Length 11-19mm; legs, 1-4-2-3; pl. 3, fig. 1; pl. 4, figs. 2-5

Cephalothorax above dull yellow sparsely clothed with yellowish brown hairs; on the disk, two irregular bands slightly darker, separated by the dorsal groove and a narrow, dark line extending from groove to posterior median eyes; a narrow, sub-marginal, dark line along sides of thorax to cervical groove. *Eyes* almost equal in size; posterior lateral slightly larger and anterior lateral perhaps smaller; four anterior eyes form a triangular area over twice as wide anteriorly as long; first row (anterior lateral) much wider than third row (posterior median). *Clypeus* very narrow, scarcely the width of an anterior median eye; seen from above, the anterior lateral eyes appear to project from anterior margin of head. *Chelicera* in color like cephalothorax and with mixed short and long hairs; lower margin of the furrow with three teeth (pl. 4, fig. 4). *Abdomen* above yellowish white; a median dusky band with edges gently scalloped extends to spinnerets; through centre of dusky band at base, a lanceolate mark and on each side of this a black dot; venter of abdomen behind genital furrow pale yellow. *Legs* light yellowish brown, lighter beneath; unmarked except for dark spots at base of spines. *Sternum*, labium and endites pale yellow. *Epigynum* resembles that of Thanatidius tenuis Hentz and Pisaurina mira.

Male: length 9-14 mm; legs 1-4-2-3; pl. 3, fig. 2; pl. 4, fig. 1.

The male resembles the female in color but the abdomen and legs are proportionally longer and more slender. The abdomen above has the median scalloped band only slightly developed or absent but the basal lanceolate mark is usually evident with its accompanying black spots. The palpus (pl. 4, fig. 1) resembles that of Pisaurina mira; the tibia however, is longer and slimmer and has the apophysis shorter and directed forward.

Mature males are in the collections at Cornell University and the Museum of Comparative Zoology, Cambridge, Mass.

Synonymy

Tetragonophthalma undulata Keyserling, Verh. Zool. Bot. Ges. Wien., 1887, 37:486, pl. 6, fig. 42
Tetragonophthalma undulata, Marx, Proc. U. S. Nat. Mus. 1890, 12:567
Tetragonophthalma dubia, Banks, Proc. Ent. Soc. Wash., 1899. 4:188, 190
Thanatidius dubius, Banks, Proc. Acad. Nat. Sci. Phila., 1904, 56: 136
Thanatidius dubius, Banks, Second Rep't. Sec'y de Agricultura Comercio y Trabajo de la Republica de Cuba, 1909, pt 2, p. 166
Thanatidius dubius, Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 54
Thanatidius dubius, Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:547
Thanatidius dubius, Rosenfeld, Jour. Econ. Ent., 1911, 4:404
Thanatidius dubius, Comstock, The Spider Book, N. Y., 1912, pp. 605–606, fig. 690
Thanatidius dubius, Lutz, Ann. N. Y. Acad. Sci. 1915, 26:101

Remarks. Simon[1] properly characterized this genus under the name Thanatidius but selected as the type, Thomisus dubius Hentz. It is evident, therefore, that Simon had before him a specimen of the earlier described Tetragonophthalma undulata of Keyserling when he gave his diagnosis.

Habits. Specimens from the Okefinokee swamp in Georgia were collected in the low ground bordering the islands. A mature male was taken in May 1912 and a mature female in June of the same year.

Distribution. *Denmark, S. C.; *Billy's island, Okefinokee swamp, *Waycross and *Fargo, Ga.; Punta Gorda, *Miami, Archer, Fla.; Mensura and Shreveport, La.; Havana, Cuba.

PISAURINA Simon

Hist. Nat. Araignées, 1898, 2:295

The genus Pisaurina, proposed by Simon to include Dolomedes mirus Walckenaer (type), and those species of Hentz described under the name Micrommata (M. undata, M. serrata, M. carolinensis), was characterized as follows: anterior row of eyes in a slightly procurved line, median larger than lateral; median ocular area slightly longer than broad posteriorly; posterior median somewhat larger than anterior median. Careful measurements of a considerable number of individuals of both sexes, however, show the median ocular area is as wide posteriorly (a little wider in some) as long, and that the eyes of the anterior row are equal in size and equidistant.

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[1] Hist. Nat. Araignées, 1898, 2:293.

Cephalothorax slightly longer than broad, constricted in front of cervical grooves. *Eyes* in two rows (pl. 9, fig. 4); anterior slightly procurved, posterior strongly recurved; median ocular area as wide, or slightly wider posteriorly than long; eyes of the anterior row equal in size and equidistant. Lower margin of furrow of chelicera with three teeth (pl. 9, fig. 3). *Abdomen* about twice as long as broad. *Legs:* First, second and fourth longest, about equal; third shortest; tibiae and metatarsi of first and second legs beneath, with 2-2-2-2 spines, apical short; superior lorum of the pedicle with a transverse suture (pl. 9, fig. 2).

Type of the genus Dolomedes mirus Walckenaer.

Pisaurina Simon, Hist. Nat. Araignées, 2d ed., 1898, 2:295
Ocyale Emerton, Tran. Conn. Acad., 1885, 6:499–500
Pisaurina Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 54
Pisaurina Petrunkevitch, Bul. Amer. Mus. Nat. Hist. 1911, 29:545
Pisaurina Comstock, The Spider Book, N. Y., 1912, p. 607

Key to Species

Median dorsal stripe of abdomen above, when present, with sides more or less notched; first leg without femur and basal segments, as long as body.
Pisaurina mira (Walckenaer)

Median dorsal stripe of abdomen above with sides nearly straight and bordered each side by a bright white line; first leg without the femur and basal segments, shorter than the body Pisaurina brevipes (Emerton).

Pisaurina mira (Walckenaer)

Hist. Nat. Ins. Apt., 1837, 1:357

Type: Dolomedes mirus Walckenaer; type specimen not known to exist

Type locality: Georgia
Female: Length 13-16.5mm; average of ten, 14.4mm; legs 1-2-4 about equal, third shortest; pl. 5, fig. 1; pl. 8, fig. 3; pl. 9, figs. 2-5; pl. 11

Cephalothorax above with ground color light yellow to light brown on the sides and with a median band, dark brown, tapering slightly from clypeus to posterior margin of cephalothorax; median band inclosing the eyes and occupying about one-third of the entire width of the thorax; extreme margin of thorax often with a narrow, dark line; sides diffused with dusky; bordering the median band, often a line of white hairs; the median band clothed with brown hairs and in the eye region, long, white ones. In life or dry, the sides appear covered with dirty white hairs and the color of the integument is obscured. *Eyes* surrounded with black (pl. 9, fig. 4): eyes of anterior row in a slightly procurved line, practically esual in size and equi-distant, separated by a little less than the diameter of one of them; posterior row strongly recurved, eyes equal in size and larger than those of anterior row; median separated by the diameter

of one of them, considerably farther from the lateral; area of median eyes as broad posteriorly as long. Width of clypeus about 2½ diameters of an anterior median eye. *Chelicera* yellowish brown clothed with long, white hairs, some of which are dark on basal third; lower margin of the furrow with three teeth. *Abdomen* above with a dark median band clothed with light brown hairs; anteriorly as broad as that of cephalothorax, gradually widening to the middle of the length of abdomen, then, the sides becoming notched, tapering to spinnerets. Contrast between median band and the lighter integument of sides heightened by dense covering of white hairs on the latter in life or when dry; several oblique rows of small, often indistinct, brown spots cross sides of abdomen and terminate indefinitely at sides of venter. Below abdomen is dirty yellowish white spotted more or less with brown; often a median, light line from epigynum to spinnerets. Integument of legs brownish yellow, in life considerably lighter from covering of mixed white and light brown hairs. In some specimens otherwise typically colored the legs are strongly banded. *Sternum* lighter than legs; a median yellow mark with irregular sides is bordered with gray. *Labium* reddish brown at base, lighter distally; endites usually pale yellow. *Epigynum* (pl. 9, fig. 5): lateral lobes separated anteriorly, meet on the middle line behind; median lobe excavated in front.

Male: length 12-15 mm; legs (1-2)-4-3; 38-38-35-31 mm; frontispiece; pl. 5, fig. 2; pl. 9, fig. 1

Color and pattern in general like that of female; in size a little smaller with abdomen less robust. Legs considerably longer and more slender than in female. The external apophysis of the tibia of the palpus is truncated and concave on its inner surface. The bulb resembles that of Pelopatis undulata but differs markedly from other genera of the family.

Very young specimens are pale green or yellow with a pair of dark longitudinal stripes on the cephalothorax.

Dark variety. Pl. 6, fig. 2; pl. 8, figs. 2, 4.

In this variety the median band of the cephalothorax is not as well marked as in the typical form, being obscured by a covering of short, white hairs. The integument of the sides is darker but in life the covering of white hairs gives a grayish appearance to the entire cephalothorax. On the abdomen the median band may be almost obliterated or indicated by small dense patches of white hair in spots that correspond to lateral notches in the band of a normally marked individual. The legs may be uniform brown or more or less ringed.

Variety subinflata. Pl. 7, fig. 1; pl. 9, fig. 6

Under the name Micrommata subinflata, Hentz described this variety of Pisaurina mira as a distinct species; but there are no constant structural characters to distinguish it although its color pattern may show wide divergence from the form described as typical; moreover, in its distribution it is coincident with the other varieties.

The median band of the cephalothorax is narrowly constricted in the region of the dorsal groove or present as a dusky stripe. Lateral margins of cephalothorax with a dark line sometimes broken into spots. Median band of abdomen considerably reduced; widest in front, narrowing to linelike proportions posteriorly or broken, forming angulate spots. Lateral oblique rows of spots intensified and more conspicuous than in typical variety. Legs conspicuously ringed with black or brownish black on distal ends of femora, tibiae and metatarsi; patellae all dark. The epigynum may differ slightly from that of P. mira but the variation is not greater than that which occurs in a series of the typical form.

Synonymy

Dolomedes mirus Walckenaer, Ins. Apt., 1837, 1:357
Dolomedes virgatus Walckenaer, ibid., p. 358
Micrommata undata Htz., Bost. Jour. Nat. Hist., 1847, 5:192–193, pl. 16, fig. 7
Micrommata serrata Htz., ibid., p. 193, pl. 16, fig. 8
Micrommata marmorata Htz., ibid., pp. 193–194, pl. 17, fig. 5
Micrommata carolinensis Htz., ibid., p. 194, pl. 16, fig. 9
Micrommata subinflata Htz., Bost. Jour. Nat. Hist., 1850, 6:288, pl. 10, fig. 13
Micrommata carolinensis, Scudder, Scudder's Supplement, Proc. Bost. Soc. Nat. Hist., 1868, 11:103
Micrommata subinflata Htz., ibid., p. 104
Micrommata marmorata ibid., p. 104, figs. 56, 105
Micrommata serrata ibid., p. 104, fig. 1
Micrommata undata ibid., p. 104, fig. 98
Micrommata undata Burgess, Reprint, Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, pp. 42–43, pl. 6, fig. 7; pl. 18, fig. 98
Micrommata serrata, ibid., p. 43, pl. 6, fig. 8; pl. 18, fig. 1
Micrommata marmorata, ibid., p. 44, pl. 7, fig. 5; pl. 18, fig. 56, 105
Micrommata carolinensis, ibid., pp. 44–45, pl. 6, fig. 9; pl. 20, fig. 4*a-b-c*.
Micrommata subinflata Htz., ibid., p. 161, pl. 17, fig. 13
Ocyale undata, Emerton, Tran. Conn. Acad., 1885, 6:499–500, pl. 49, figs. 7, 7*a*
Ocyale undata, Marx, Proc. Nat. Mus., 1890, 12:565
Ocyale undata, Stone, Proc. Acad. Nat. Sci. Phila., 1891, 42:432
Ocyale undata, Marx, Proc. Ent. Soc. Wash., 1892, 2:160
Ocyale undata, Banks, Proc. Acad. Nat. Sci. Phila., 1892, 43:72
Ocyale undata, Baker, Ent. News, 1894, 5:164
Pisaurina undata, Banks, Ent. News, 1895, 6:206
Pisaura undata, Banks, Jour. N. Y. Ent. Soc., 1895, 3:91
Pisaurina mira, Simon, Hist. Nat. des Araignées, 2d ed., 1898, 2:295
Ocyale undata, Slosson, Jour. N. Y. Ent. Soc., 1898, 6:248

Ocyale undata, Banks, Proc. Ent. Soc. Wash., 1899, 4:190
Pisaurina undata, Banks, Proc. Acad. Nat. Sci. Phila., 1900, 52:537
Ocyale undata, Emerton, Common Spiders, 1902, p. 88, figs. 215–217
Ocyale undata, Montgomery, Proc. Acad. Nat. Sci. Phila., 1902. 54:584–586
Ocyale undata, Britcher, Proc. Onon. Acad. Sci. 1903. 1:129
Ocyale undata, Montgomery, Proc. Acad. Nat. Sci. Phila., 1903, 55:91–92, pl. 4, fig. 1
Ocyale subinflata, Britcher, Proc. Onon. Acad. Sci., 1903, 1:129
Pisaurina mira, Montgomery, Proc. Acad. Nat. Sci. Phila., 1904, 56:320–321
Pisaurina undata, Banks, ibid., p. 136
Pisaurina mira, Schaeffer, Tran. Kan. Acad. Sci., 1905, 19:193
Pisaurina mira, Schaeffer, Kan. Univ. Sci. Bul., 1906, 3:119
Pisaurina undata, Banks, Ind. Dep't Geol. and Nat. Res. 31st Ann. Rep't, 1907, p. 743
Pisaurina subinflata, Banks, ibid.
Pisaurina mira, Bryant, Occ. Papers Bost. Soc. Nat. Hist., 7, 1908, p. 79
Pisaurina mira, Montgomery, Proc. Acad. Nat. Sci. Phila., 1909, 61:553–557
Pisaurina undata, Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 54
Pisaurina subinflata, ibid.
Pisaurina undata, Banks, Proc. Acad. Nat. Sci. Phila., 1911, 63:452
Pisaurina mira, Petrunkevitch, Bul. Amer. Mus. Nat His., 1911, 29:545
Pisaurina subinflata, ibid.
Pisaurina mira, Comstock, The Spider Book, N. Y., 1912, p. 607, figs. 684–687, 691–692
Ocyale undata, Banks, Proc. Acad. Nat. Sci. Phila., 1916, 68:82
Pisaurina undata, Pratt, Manual Common Invertebrates, 1916, p. 432
Pisaurina undata, Barrows, Ohio Jour. Sci. 1918, 18:313

Remarks. The extreme variations to which this species is subject, both in size and coloration, have resulted in a multiplicity of names; but inasmuch as all varieties have the same range, none may be given subspecific value on the basis of geographic distribution. Hentz defined two groups (tribes) based on the arrangement of the eyes; in the first, the Arcuatae, the anterior row straight; in the second, the Biarcuatae, the anterior row procurved. Viewed from above, the first row may appear slightly recurved or straight but from in front, a slight procuvature is evident in all varieties. The names applied by Hentz to color varieties of this species follow: Micrommata undata, M. serrata, M. marmorata, M. carolinensis.

In Walckenaer's description, Dolomedes mirus is likened to Pisaura mirabilis of Europe, Africa, et al, a species totally unlike the Abbot drawing. It is evident, therefore, that Walckenaer had specimens before him when he wrote his account.

Habits. Overwintered specimens of all sizes and ages are found in the spring and some reach maturity and deposit their eggs as early as the last week of May or the first of June; thereafter mature specimens with eggs or young may be found throughout

the summer and well into September. Farther south, mature males may be found in April. Low-growing vines and weeds at the edge of hillside woods offer favorable nursery sites for the early maturing individuals, especially where a southern exposure receives full benefit of the sun. Later in the season they are more widely scattered and are likely to be found on the bushes and low shrubs.

In the construction of the nursery web and disposition of the egg sac, Pisaurina mira differs widely from those species of Dolomedes whose habits have been observed. In the latter, the female carries the egg sac until the young are ready to emerge, then attaches it to a convenient support and spins the nursery web around it. With Pisaurina mira, the nursery is usually constructed before the eggs are laid. A plant having a three-lobed leaf is often selected for the retreat, and there seems to be a decided preference for the poison ivy (Rhus). The middle leaflet, pulled down and fastened, serves as a roof; the two lateral leaflets, as the side walls (pl. 10, fig. 1), and a silken platform spun across the opening beneath, as the floor (pl. 10, fig. 2). Hanging back downwards from the lines that hold the leaves in position, the spider clutches her sac of eggs with her chelicera and embraces it with the third legs. The first and second pairs partially encircle the sac but the claws are caught in the supporting strands of the nursery and serve with the fourth pair, to support the burden. Threads from the spinnerets complete the attachment behind and serve in emergency as the only connection. The egg sac, the size of a cherry pit and snowy white when first made, is enlarged considerably by the hatching and growth of the young and acquires a dingy hue.

Just before the eggs hatch, the sac is suspended in the retreat and the young, doubtless aided by the mother, escape through an opening in the bottom. To provide room—for the young moult once within the egg sac, soon after leaving it and again in about ten days—the silken floor of the chamber is pushed aside and new lines added which cover the outside and entangle nearby leaves (pl. 11). Females confined with their sacs proved their ability to construct dome-shaped retreats entirely of silk within which they remained until the young emerged. Another specimen provided with a paper leaf patterned after the poison ivy, drew the parts together in the conventional manner and hung with her sac for several days. In some cases several nurseries are constructed before one is found to meet the exact requirements and it is due to this habit that the female is sometimes found wandering about with her egg sac.

Montgomery[1] who made some observations on the care of the young, states that the spinnerets are not attached to the egg sac; but several specimens of mine when offered water were observed to drag the sac from the spinnerets alone in the same manner as a lycosid.

The actual mating of the species has not been observed by me but I was fortunate enough to watch the development of a male and find it preparing a web (see frontispiece) for the reception of the spermatic products. An immature male taken July 18th moulted August 16th, September 11th and again January 8th. On January 23d a small vertical web of fine lines suspended between coarser supports was spun across the glass chimney in which the male had been confined. On one side a little above the center, the spermatic fluid was deposited in a drop. A little later the male took his position on the other side of the web and applied the palpal organs alternately by reaching over the top and patting the drop with one palpus, the other meanwhile being raised to the level of the eyes. The procedure lasted but a few minutes, the drop diminishing visibly as each palpus touched it.

Distribution. Ottawa, Winnipeg, Canada; *Brittons, *Jamesville, *Baldwinsville, *Long Branch, *Fishkill Landing, *Ithaca, *Staten Island, *Bump's pond, *Otto, *Hyde Park, *Albany, *Rensselaer, *Flatbush, New York; *Gambier, *Urbana, *Columbus, *Rockbridge, Marietta, Delaware, Ohio; *Wood's Hole, Roxbury, Beverly, Topsfield, Peabody, Holyoke, Brookline, Mount Tom, Warwick, Mass; Franconia, Lake Winnepesaukee, N. H.; New Haven, Conn.; Philadelphia, Chester, Pa.; *Madison, *Vineland, N. J.; *Washtenaw county, Mich.; *St Croix Falls, Wis.; *Olney, *Riverside, New Lenox, Pistakee, Gangers, Ill.; *Lawrence county, Wild Cat creek, Kan.; Arlington, Bass Lake, Shoals, Culver, Greencastle, Otis, Porter, Huntington, Ind., *Great Falls, *Dyke, *Black pond, *Potomac river, *Falls Church, Va.; *Millville, W. Va.; *De'escarlia Reservoir, *Cabin John, *Beltsville, *Island creek, *Hyattsville, *Little Paint Branch, *Forest Glen, Md.; *District of Columbia; Delaware; *Chapel Hill, Morgantown, Murphy, Swannanoa Valley, Black Mountains, N. C.; *Charleston, S. C.; *Chastine, Shreveport, La.; *Starkville, *Sessums, Miss.; Opelika, *University, *Pratt's Ferry, *Woodstock, *Hull lake, *Holt, Ala.; *Springfield, Mo.; *Punta Gorda, Fla.; Texas; Georgia.

Variety subinflata. This variety is apparently not so common as the others but is widely distributed. Specimens have been

[1] Proc. Acad. Nat. Sci. Phila., 1903, p. 91.

examined from Chatham, Mass.; Onondaga valley, Baldwinsville, Pagan Hill, Indian Reservation, Onondaga county, Ithaca, Riders Mills, Columbia county, N. Y.; St Croix Falls, Wis.; Anacostia, D. C.; also reported from Alabama.

Pisaurina brevipes (Emerton)

Tran. Conn. Acad. Arts and Sci., 1911, 16:400, pl. 4, figs. 6, 6a

Type: Pisaura brevipes Emerton; type specimen in collection of Museum of Comparative Zoology, Cambridge, Mass.
Type locality: Mount Tom, Mass., South Framingham, Mass.
Female (alcohol): length .11mm; legs, 4-(1-2)-3; 18-16-16-14.5mm; pl. 7, fig. 2; pl. 33, fig. 5.

Cephalothorax above with a broad, dark reddish brown median stripe extending from the clypeus to posterior margin of thorax; on each side of this a whitish or yellowish brown band, narrowing to a point at the sides of the clypeus but rapidly widening to one-half the width of the median band; sides below light band, dark reddish brown. Light stripes in integument clothed with white hairs, dark bands with mixed white and brown hairs. *Eyes* of anterior row in a slightly procurved line, equal in size and equidistant, separated by less than the diameter of one of them; posterior median a little larger than anterior median; median ocular area as broad or a little broader posteriorly, than long. Height of *clypeus* less than one-half that of median ocular area. *Chelicera* light brown clothed with long and short, white and yellowish hairs; lower margin of the furrow, armed with three evenly spaced teeth. *Abdomen* above with a median stripe continuing that of the cephalothorax and anteriorly of the same color; posteriorly deep brown (in some, almost black) and slightly tapering; sides of median band with fewer undulations than is the case in P. mira; on each side of median band a line of dense, white hairs below which the integument, light yellow brown, is covered sparsely with white hairs; sides and venter brown with a covering of fine yellowish or white hairs. *Legs* fourth longest, first and second about equal, third shortest; uniform reddish brown except coxae beneath which are spotted with black. *Sternum* dark brown with lighter median stripe. *Labium* light brown at base, paler distally; endites light brown, pale on side bordering labium. *Epigynum* a little shorter and rounder than in Pisaurina mira.

Male: The male has not been described.

Synonymy

Pisaura brevipes Emerton, Trans. Conn. Acad. Arts and Sci., 1911, 16:400, pl. 4, figs. 6, 6a.
Pisaura brevipes, Barrows, Ohio Jour. Sci., 1918, 18:313
Pisaura brevipes Emerton, Trans. Royal Can. Inst., 1919, 12:327

Remarks. I have transferred this species from the genus Pisaura because the eyes, epigynum and clypeus resemble Pisaurina mira, the type of the genus. In Simon's definition of the genus Pisaura, it is pointed out that the height of the clypeus equals or exceeds that of the median ocular area, that the posterior median eyes are one-third larger than the anterior eyes and that the posterior eyes are equal in size. In a specimen of this species kindly loaned me by Mr J. H. Emerton, I find the height of the clypeus less than one-half the height of the median ocular area, the posterior median eyes only a little larger than the anterior median, characters which are also found in Pisaurina mira. Furthermore the suture of the lorum of the pedicle resembles closely that of Pisaurina.

In general this species is a little smaller than P. mira with strongly contrasting colors and legs proportionally shorter and stouter. Nothing has been published concerning its habits.

Known distribution. Mount Tom, *South Framingham, Mass.; Vineland, Ont., Canada; Sugar Grove, *Ashtabula, Ohio; *Washtenaw county, Mich.

DOLOMEDES Latreille

Nouv. Dict. Hist. Nat., 1804, 24:135

The genus Dolomedes was established by Latreille without direct indication of the species which he considered belonged in it. He did, however, indicate that it was equivalent to the "Coureuses" of Walckenaer. The only paper of Walckenaer to which he could have referred was the "Faune Parisienne" 1802, in which (v. 2, p. 235 under, "fam. 14, coureuses") he includes two species, Aranea mirabilis and Aranea marginata. It has been clearly established by T. Thorell[1] and others that D. marginatus is the same as D. fimbriatus. This leaves only D. mirabilis and D. fimbriatus to be considered in determining the type of the genus.

In 1805, Walckenaer[2] adopted the genus Dolomedes and placed in it four species which he divided into two "families," the Ripurariae and the Sylvariae. In the first he placed D. marginatus De

[1] Recensio Critica Aran. Suecic., 1856, p. 66.
Remarks on Synonyms of European Spiders, 1872, pp. 346–349.
[2] Tableau des Araneides, 1805, pp. 16–17.

Geer (= D. fimbriatus), D. fimbriatus Clerck, and D. rufus De Geer; in the second, D. mirabilis Clerck. In 1837 C. L. Koch[1] following Sundevall 1832[2], placed D. mirabilis in the genus Ocyale, (now in Pisaura) and it is therefore evident that D. fimbriatus of Clerck[3] is the type of Dolomedes as indicated by Thorell.

Generic characters. *Cephalothorax* slightly longer than broad, high and convex in the eye region, somewhat flattened on the disk, and provided with a definite dorsal groove and less distinctly marked radical furrows; posterior declivity broad and steep. *Eyes* in two rows, (pl. 21, fig. 4) those of the posterior larger, usually about equal in size (when unequal, the posterior median slightly smaller and closer to each other than to the lateral) and equidistant. Anterior row usually slightly recurved with the median larger than lateral (rarely with anterior row straight and eyes subequal in size). Median ocular area a little wider posteriorly than long and much narrower in front than behind. *Clypeus* as wide or wider than the height of the median ocular area. Lower margin of the furrow of the chelicera with four teeth (pl. 21, fig. 3). *Legs* strongly developed, usually 4-1-2-3, third shortest, the others almost equal in length; tibiae and metatarsi of first and second legs below, armed with 2-2-2-2 and 2-2-1 spines, respectively. Anterior segment of the superior lorum of the pedicle notched behind to receive a projection of the posterior segment (pl. 21, fig. 5).

Type of the genus, Araneus fimbriatus Clerck.

Dolomedes Latreille, P. A. Nouv. Dict. Hist. Nat., 1804, 24:135
Dolomede Walckenaer, Tab. des Aran., 1805, pp. 16–17
Dolomedes Latreille, Considerations generales sur l'ordere naturel des animaux composant les classes des Crustaces, des Arachnides, et des Insectes, Paris, 1810, p. 129
Dolomedes Sundevall, J., Genera Araneidum Sueciae exhibens, 1823, p. 20
Dolomede Latreille, P. A., Familles Naturelles du Regne Animal, 1825, p. 316
Dolomedes Latreille, Cours d'Entomologie, ou de l'Histoire naturelle des Crustaces, des Arachnides, des Myriapodes et des Insectes, Paris, 1831, pp. 536–537
Dolomedes Walckenaer, Hist. Nat. des. Ins. Apt., 1837, 1:345
Dolomedes Koch, C. L., Uebersicht des Arachnidensystems, 1837, 1:23
Dolomedes Hentz, Bost. Jour. Nat. Hist., 1846, 4:394
Dolomedes Thorell, T. Recensio Critica Aranearum Suecicarum, 1856, p. 66
Dolomedes Westring, N., Araneae Suecicae, 1861, pp. 534–536
Dolomedes Blackwall, Spiders of Great Britain and Ireland, 1861, 1:37
Dolomedes Simon, Hist. Nat. des Araignées, 1st ed., Paris, 1864, p. 374
Dolomedes Thorell, On European Spiders, Upsala, 1869, p. 194
Dolomedes Thorell, Remarks on Synonyms of European Spiders, 1872, pp. 346–349

[1] Uebersicht des Arachnidensystems, 1837, 1:23.
[2] Sv. Spindl. Beskr. in Vet. Akad. Handl., 1832, p. 198.
[3] Aranei Suecici, Stockholm, 1757, pp. 106–108, pl. 5, tab. 9.

Dolomedes	Hentz, Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, p. 36
Dolomedes	Simon, Les Arachnides de France, Paris, 1876, 3:228–232
Dolomedes	Emerton, Trans. Conn. Acad., 1885, 6:500
Dolomedes	Stone, Proc. Acad. Nat. Sci. Phila., 1890, 42:432–433
Dolomedes	Marx, Proc. U. S. Nat. Mus., 1890, 12:566
Dolomedes	Simon, Hist. Nat. des Araignées, 2d ed., Paris, 1897, 2:312
Dolomedes	Montgomery, Proc. Acad. Nat. Sci. Phila., 1902, 54:586
Dolomedes	Comstock, A Classification of N. Amer. Spiders, 1903, p. 50
Dolomedes	Banks, Amer. Nat., 1905, 39:318
Dolomedes	Banks, U. S. Nat. Mus. Bul., 72, 1910, p. 53
Dolomedes	Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:541
Dolomedes	Comstock, The Spider Book, 1912, pp. 607–617

Key to the Species of Dolomedes[1]

Females

A Median lobe of epigynum hemispherical; as broad or broader than long
B Lateral lobes of epigynum narrow, scarcely meeting on middle line behind D. okefinokensis nov. sp. p. 38
BB Lateral lobes wide, broadly in contact on middle line behind D. tenebrosus Hentz p. 40
AA Median lobe of epigynum not hemispherical; considerably longer than broad
B Abdomen above dark reddish brown without lateral, light bands or markings; cephalothorax with a broad, submarginal, white band D. albiclavius nov. sp. p. 56
BB Abdomen above variously marked but not uniform dark reddish brown without lateral light bands or markings
C Abdomen above with several pairs of small, white dots in two rows
D Cephalothorax above with a submarginal band of bright white hairs; sternum with six small, black spots, three on each side near the coxae D. triton (Walckenaer) p. 50
DD Cephalothorax above without a submarginal band of bright white hairs; a pair of black, wedge-shaped marks in front of dorsal groove D. urinator Hentz, p. 36
CC Abdomen above without small, white spots arranged in two rows
D Abdomen above uniform dark brown bordered each side by white or yellowish white
E Lateral light bands of abdomen broad with two short branches extending towards the disk D. vittatus Walckenaer p. 47
EE Lateral light bands narrow, without branches D. striatus Giebel p. 57
DD Abdomen above not uniform dark brown bordered with white
E Abdomen above yellowish white or yellow marked with brown or black
F Abdomen above with a median, basal, black-edged mark of yellow followed by three rows of irregular, black spots D. fulviatronotatus nov. sp. 59
FF Abdomen above without a median, basal, black-edged mark of yellow; venter of abdomen with a median, light stripe from epigynum to spinnerets D. albineus Hentz p. 33
EE Abdomen above not yellowish white or yellow marked with brown or black
F Abdomen above dark brown; posterior half crossed by several transverse, W-shaped, white lines D. scriptus Hentz p. 44

[1] Dolomedes pinicola is not included in the key which is based largely on the structure of epigyna. The only known specimen is immature p. 60

The males of but six of the eleven species of Dolomedes described herein are known; these resemble the females in color and markings except that the pattern is often more highly developed. The males of D. tenebrosus, D. okefinokensis and D. triton are considerably smaller than the females; they reach maturity earlier in the season and often escape detection when the females are conspicuous. Males of D. scriptus, D. albineus, and D. vittatus have smaller abdomens, but the legs are proportionally and sometimes actually longer than in the females.

Key to the Species of Dolomedes

Males

A A spinose hump on the femur of the fourth leg beneath
  B Tibial apophysis very long, extending almost one-half the length of the bulb D. triton Walckenaer p. 50
  BB Tibial apophysis short, extending only to base of bulb D. vittatus Walckenaer p. 47
AA No spinose hump on the femur of the fourth leg beneath
  B Median apophysis of bulb stout, small at base, dilated distally, produced to a point on the side toward tip of embolus
    C Apophysis of tibia short, concave internally, broadly notched at tip; venter of abdomen with a definite median, light stripe from genital furrow to spinnerets; abdomen above white or grayish white marked with light brown D. albineus Hentz p. 33
    CC Apophysis of tibia broadly dilated and deeply notched distally; venter of abdomen without a definite median light stripe; abdomen above crossed by several transverse W-shaped white lines D. scriptus Hentz p. 44
  BB Median apophysis of bulb slender; distal half narrow, ribbon-like, almost transparent
    C Median apophysis acutely angled at middle of its length; basal half abruptly swollen in the middle D. tenebrosus Hentz p. 40
    CC Median apophysis nearly right-angled at middle of its length; basal half not conspicuously swollen D. okefinokensis nov. sp. p. 38

Dolomedes albineus Hentz

Bost. Jour. Nat. Hist. 1845, 5:189–190, pl. 16, fig. 2

Type: Dolomedes albineus Hentz; type specimen not known to exist
Type locality: Alabama
Female (alcohol): length 20-28mm; average 24mm; legs 4-1-2-3, 51-48-47-41mm; pl. 12; pl. 14, figs. 2-3

Cephalothorax above, light reddish or yellowish brown, dorsal and radial grooves darker and bearing brown hairs; scattered patches of short, white hairs, indistinct in alcohol, between radial grooves; extreme margin black; head slightly darker, somewhat elevated, sides thickly clothed with short, white hairs. *Eyes* of the anterior row in a slightly recurved line, median somewhat larger than the lateral and

closer to them than to each other; posterior row strongly recurved, eyes subequal in size and with a diameter one and one-half that of the anterior median; posterior median separated by less than the diameter of one of them, a little farther from the lateral. Upper half of clypeus with a band of short, white hairs connecting white patches on sides of head; lower margin of clypeus dark reddish brown clothed with short, brown hairs. *Chelicera* dark reddish brown to black, sides and distal end with long, white hairs. *Abdomen* above with ground color light yellow; a median band of brown, narrow anteriorly but widened abruptly about the middle of the length of the abdomen, is clothed with short, white and brown hairs; behind middle, the median band is twice constricted; sides of abdomen grayish; venter with a black-bordered median light yellowish white band widest anteriorly and tapering from epigastric furrow to spinnerets. Spinnerets reddish. *Legs* yellowish or reddish brown mottled with patches of brown and white hairs; coxae reddish brown. *Sternum* reddish brown clothed with mixed white pubescence and long, dark hairs. *Labium* and endites dark reddish brown, lighter distally. *Epigynum:* the lateral lobes unite in front of the median lobe and are barely separated behind; median lobe widest in front, tapering to a blunt point behind.

Male (*alcohol*): Length, 16-17mm; legs, 1-2-4-3, 49-46-45-33mm; pl. 13; pl. 14, fig. 1.

Cephalothorax and abdomen above marked as in female. Legs proportionally longer, much lighter colored and indistinctly blotched with long, brown hair on femora, patellae, and tibiae; below, coxae and femora immaculate, dingy yellow; joints beyond, darker; fourth pair longer than first. Sternum, endites and labium light yellow; abdomen beneath with a light median stripe bordered with brown; sides of abdomen below, yellow. Tibia of palpus with a bunch of strong spines on the distal end beneath; external apophysis broad, concave internally and truncated at tip; a broad, rounded tooth at the base of apophysis on anterior side.

Synonymy

Dolomedes albineus Hentz, Bost. Jour. Nat. Hist., 1845, 5:189–190, pl. 16, fig. 2 (female)

Dolomedes albineus Hentz, Scudder, Proc. Bost. Soc. Nat. Hist., 1868, 11:103, fig. 73

Dolomedes albineus Hentz, Reprint, Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, p. 39, pl. 6, fig. 2; pl. 18, fig. 73

Dolomedes albineus, Banks, Ent. News, 1898, 9:142

Dolomedes albineus, Marx, Proc. Nat. Mus., 1899, 12:566

Dolomedes albineus, Banks, Proc. Nat. Sci. Phila. 1901, 52: 530, 538

Dolomedes albineus, Banks, Proc. Acad. Nat. Sci. Phila., 1904, 56:136

Dolomedes albineus, Banks, Bul. 72, U. S. Nat. Mus., 1910, p. 53

Dolomedes albineus, Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:542. Considered by Petrunkevitch as a synonym of Dolomedes rufus De Geer

Dolomedes albineus, Comstock, The Spider Book, New York, 1912, p. 609

Remarks. Dolomedes albineus Hentz is regarded by Banks [1] and Petrunkevitch [2] as a synonym of Dolomedes rufus De Geer. Simon [3] in his discussion of D. rufus, listed D. tenebrosus Hentz as a synonym but figured, apparently following Emerton [4], the tibial apophysis of D. vittatus Walckenaer [5]. But there is nothing in De Geer's [6] description or figure of Dolomedes rufus (*Aranea rufa*) to enable this species to be specifically identified with any of the American forms now recognized. De Geer's specimen came from Pennsylvania, a locality much too far north for this distinctly southern species. Walckenaer [7], following De Geer, described two specimens from Georgia, compared them with Abbot's plates of the "Tree Spider," and indicated their identity with De Geer's D. rufus. Abbott's figures [8] were thought by Walckenaer to represent variations of a single species and this is possibly true, although it is impossible to determine which one. Two of the four drawings bear no resemblance to any known American species; the others may be said to approach D. scriptus Hentz and D. albineus Hentz. Neither is well enough defined to be placed with any degree of certainty.

C. Koch [9] described and figured specimens from Pennsylvania and Georgia, using the name Ocyale rufa and listing De Geer's and Walckenaer's names as synonyms. While there is a slight resemblance between the Koch figure and one of Abbot's, neither shows the distinctive pattern of Dolomedes albineus; in fact, Koch's figure is more nearly like D. scriptus or D. tene-

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[1] Banks, Ent. News, 1898, 9:142.

[2] Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:541–542.

[3] Simon, Hist. Nat. des Araignées, 2d ed., 1898, 2:302, fig. 309*a*.

[4] Emerton, Tran. Conn. Acad., 1885, 6:501, pl. 49, fig. 9*b*.

[5] Emerton in his early account of Dolomedes tenebrosus figured the palpal organ and tibial apophysis of D. vittatus (D. lanceolatus Hentz). In a later paper, Tran. Conn. Acad., 1909, 14:211, under the discussion of D. urinator, he points out that his male "appears to be urinator or lanceolatus, Hentz." D. urinator is now known to be a distinct species, not the male of D. vittatus (D. lanceolatus).

[6] De Geer, Mem. L'Hist. des Insectes, 1778, 7:319–320, pl. 39, figs. 6–7.

[7] Walckenaer, Ins. Apt., 1837, 1:351.

[8] Abbot, Georgia Spiders, pl. 1, fig. 1; pl. 2, fig. 6; pl. 4, fig. 16; pl. 57, fig. 281.

[9] C. Koch, Die Arachniden, 1848, 14:112, pl. 483, fig. 1349 female).

brosus; but in this case, the species of Koch and Walckenaer must be disregarded, even if recognizable, for they were assumed to be identical with the indeterminable species of De Geer.

Habits. The low river and coastal swamps of the southeast are the localities in which the greatest numbers occur. The neutral ash-gray color of the living spiders and their habit of resting motionless and head downward on the trunks of cypress and tupelo gums, render them almost invisible. When disturbed, they rush into the water or dodge with surprising quickness to the opposite side of the tree, after the manner of a squirrel. The typical habitat of the species is shown in the accompanying plate (pl. 15). Females with egg sacs were found in July at Spring creek and in the Okefinokee swamp, Georgia.

Distribution. Auburn, *Mobile, *Wiluski Shoals, Shelby county, *Epes, Sumter county, *Silas, Choctaw county, Ala.; *Honey Island Prairie, *Floyd's island, *Billy's island, Okefinokee swamp; *Spring creek, Decator county, Ga.; *Biloxi, Miss.; Altoona, *Arkadelphia, Ark.

Dolomedes urinator Hentz

Bost. Jour. Nat. Hist., 1845, 5:190, pl. 16, fig. 3

Type: Dolomedes urinator Hentz; type specimen not known to exist

Type locality: "North Carolina, Alabama."

Female (alcohol): length, 20-28mm; average of seven mature specimens, 23.7mm; legs 4-2-1-3, 55-50-49-45mm; pl. 16; pl. 33, fig. 3

Cephalothorax above deep reddish brown, clothed with short, dark brown hair; extreme margin black; radial grooves darker, narrow above, expanding somewhat on the sides; in front of the dorsal groove, a pair of small, black, wedge-shaped marks, their apices directed backward; eye region black. *Eyes:* anterior row slightly recurved, median a little larger than lateral and closer to them than to each other; posterior row strongly recurved, eyes equal in size or nearly so, almost twice the diameter of anterior median; posterior median separated by less than the diameter of one of them, considerably more than their diameter from the lateral. Width of clypeus 4 to 5 times the diameter of an anterior median eye. *Chelicera* deep reddish brown to black, clothed with long hairs. *Abdomen* above and on sides, dark reddish brown with a dense covering of short, brown hairs; on basal third above, a lighter, median, lanceolate mark (sometimes absent); on posterior part four or five pairs of small, white spots surrounded by a narrow line of black (indistinct in alcohol), each pair connected by a short, recurved, black bar; venter of abdomen in some specimens, with a band somewhat

lighter, tapering from epigastric furrow to spinnerets. *Legs* reddish brown, indistinctly blotched on femora; terminal segments darker. *Sternum* uniform dark brown, thickly haired. *Labium* and *endites* bright reddish brown, lighter distally. *Epigynum* considerably broader than long; median lobe concave anteriorly, convex on posterior half; lateral lobes barely separated behind (pl. 33, fig. 3).

Male unknown.

Synonymy

Dolomedes urinator Hentz, Bost. Jour. Nat. Hist., 1845, 5:190, pl. 16, fig. 3

Dolomedes urinator Hentz, Reprint, Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, p. 40, pl. 6, fig. 3

Dolomedes urinator, Marx, Proc. U. S. Nat. Mus., 1890, 12:566

Dolomedes urinator, Banks, Proc. Acad. Nat. Sci. Phila., 1892, 44:73

Dolomedes urinator, Banks, Proc. Acad. Nat. Sci. Phila., 1900, 52:536

Dolomedes urinator, Montgomery, Proc. Acad. Nat. Sci. Phila., 1902, 54:586–588, pl. 30, fig. 50. In part, described D. scriptus but figured epigynum of D. urinator

Dolomedes urinator, Montgomery, Proc. Acad. Nat. Sci. Phila., 1904, 56:317–319 (females, in part)

Dolomedes urinator, Banks, Bul. 72, U. S. Nat. Mus., 1910, p. 53

Dolomedes urinator, Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:542 (in part)

Dolomedes urinator, Comstock, The Spider Book, N. Y., 1912, pp. 609, 611–612 (in part), figs. 699–700

Dolomedes urinator, Barrows, Ohio Jour. Sci., 1918. 18:313

Remarks. Dolomedes urinator has been very generally regarded as the female of the species described by Hentz[1] under the name Dolomedes lanceolatus. This relationship, first suggested by Banks, was accepted by students of spiders as a natural one, since males in one case were unknown and females having the markings of D. lanceolatus had never been recorded. Now, however, the females of D. lanceolatus are known to resemble the males and the specific name of Walckenaer, Dolomedes vittatus, is applicable.

The list of references given above includes only those accounts which mention or describe the female. The male of D. urinator is unknown to me and I can find no description of it or record of its capture. It is, perhaps, like the male of Dolomedes tenebrosus, very much smaller than the female and earlier maturing; the females, however, are among the largest of our native species.

Habits. Concerning the habits of this species Hentz remarks: "This large species is found near water, on which it runs with great swiftness. When closely pursued, it dives under the surface, and

[1] Bost. Jour. Nat. Hist., 1845, 5:190.

conceals itself under some leaves or rubbish until danger is past." I have never found the nursery web of this species but it doubtless resembles that of related forms. The egg sac of a very large female was three-quarters of an inch in diameter and contained 1457 young; the shed skins representing at least one moult.

Dolomedes urinator is uncommon in the north but is fairly abundant in the latitude of Washington, D. C. and farther south.

Distribution. *Ithaca, *Jamaica, *Debruce, Sullivan county, N. Y.; *Hollis, N. H.; *West Chester, Pa.; Milton, Mass.; New Jersey; Rockbridge, New Lexington, Ohio; *Olney, Ill.; *Washington, *Chain Bridge, D. C.; *Cedar Grove, Md.; *Falls Church, *Blue Ridge mountains, *Capon Springs, Va.; North Carolina; *Bainbridge, Ga.; *Florida; *Auburn, Ala.; Austin, Texas.

Dolomedes okefinokensis nov.sp.

Type: a mature female, no. 9423 and allotype no. 9426, in collection of New York State Museum; paratypes in collection of Cornell University

Type locality: Billy's island, Okefinokee swamp, Georgia, June 1912, C. R. Crosby and S. C. Bishop collectors

Female (alcohol): length 30mm; legs 4-1-2-3; 63-59.5-58.5-52.5mm; pl. 17, pl. 19, fig. 2

Cephalothorax above reddish brown narrowly margined with black; back of the eyes, an oval area lighter brown inclosed on the sides by narrow, yellowish lines and limited posteriorly by a pair of dark brown, wedge-shaped patches which lie in front of the dorsal groove; radial furrows dark brown, their extremities on sides of thorax expanded to inclose an elongate yellowish white spot. Area of the eyes dark brown to black and bearing patches of short, white hair. *Eyes:* anterior row slightly recurved; the median, separated by less than the diameter of one of them, are a little larger than the lateral and nearer to them than to each other; posterior row strongly recurved; the median, separated by less than the diameter of one of them, are one-third larger than median of anterior row; posterior lateral largest, separated from the median by 3 times the radius of one of them. *Clypeus* dark brown clothed with short, white hairs on the front and a long fringe on the lower margin; width of clypeus about four times the diameter of an anterior median eye; *Chelicera* dark reddish brown clothed with long, yellowish white hairs. *Abdomen* above, dull brown; a light yellow, median stripe on the anterior half is bordered each side by a small crescent of the same color; posterior half of abdomen with a series of three or four chevrons, the lateral ends of which often inclose small, white spots as in D. tene-

brosus; sides of abdomen usually uniform reddish brown but sometimes mottled; venter a little lighter. *Legs* brown above with soft yellowish brown pubescence, more or less annulate on the femora and tibiae; below, lighter, scopulate on metatarsi and tarsi. *Sternum* yellowish or reddish brown, often lighter mesally. *Labium* and *endites* dark reddish brown, lighter distally. *Epigynum* with the median lobe broadly convex; lateral lobes heavily chitinized on inner margins and scarcely meeting on middle line behind (pl. 19, fig. 2).

Male (alcohol): length 8mm; legs 4-1-2-3, 24.5-24-23.5-20.25mm; pl. 18, fig. 1; pl. 19, fig. 1.

Body color and pattern much as in the female but brighter and more distinct. Cephalothorax with an indistinct submarginal band of white hair in patches; sides of head with a conspicuous patch of white hairs as in the male of D. tenebrosus. Eyes surrounded with black and placed as in female except that posterior median are as large as the posterior lateral and separated from them by their diameter. Clypeus dusky with a median, vertical, light stripe; width of clypeus, about twice the diameter of an anterior median eye. Chelicera yellow with a diagonal, dark stripe down the front. Anterior half of abdomen above dark brown with a median, lanceolate, light stripe, posteriorly with a series of chevrons, dark brown on the lighter ground; venter yellowish. Legs proportionally longer and more slender than in female; yellowish, blotched irregularly with blackish; coxae immaculate. Sternum yellow with gray border; Labium yellow tinged with gray. Endites pale yellow. Palpus: the bulb resembles that of D. tenebrosus but is proportionally longer and more slender. The median apophysis (which in D. tenebrosus is sharply bent at the middle of its length and has the basal part greatly swollen) is bent at a right angle and the basal part is only slightly enlarged (pl. 19, fig. 1).

Remarks. The relation of this species to Dolomedes tenebrosus Hentz is evidenced not alone by size and general appearance but by structure of the sexual organs. Although the differences in the structure of these organs in the two species are not striking, they are constant and readily discernible and must be considered of specific value.

Habits. This species and Dolomedes tenebrosus were both collected under similar conditions on Billy's island, Okefinokee swamp, Georgia and no observations were made that would indicate striking differences in habit. They were found on herbage and the prostrate trunks of trees and not usually in such close proximity to water as in the case of Dolomedes albineus and Dolomedes triton.

Distribution. *Billy's island, Okefinokee swamp, Ga.; *Coosa river near Three Island shoal, Talladaga county, Ala.; *Chastine, La.

Dolomedes tenebrosus Hentz

Bost. Jour. Nat. Hist., 1843, 4:396, pl. 19, figs. 10–13

Type: Dolomedes tenebrosus Hentz; type specimen not known to exist

Type locality: Hentz stated the habitat to be, Carolina, Alabama, Massachusetts?"

Female (alcohol): length 15-26.5mm; average of ten mature specimens 21.8mm; legs 4-1-2-3, 46-44-42-40mm; pl. 20; pl. 21, figs. 2-5

Cephalothorax above reddish brown; back of the posterior eyes an oval area lighter brown; in front of dorsal groove a short, narrow, light line separates a pair of indistinct, dark, wedge-shaped marks and joins the oval area; extreme margin of cephalothorax black; a broad submarginal band lighter brown, more or less broken by the dark, radial furrows, the outer ends of which usually inclose a small, white spot. Eye area and front of head black; below the lateral eyes of the posterior row, an area of light yellowish brown joins the submarginal band and extends to the sides of the clypeus. Cephalothorax clothed with fine, white, and short, brown hairs, the white predominating on the radial furrows and sides of head, the brown in patches along the upper edge of the submarginal band. *Eyes* of anterior row in a slightly recurved line; median separated by about one-half the diameter of one of them; median about twice the diameter of the lateral and nearer to them than to each other; posterior row strongly recurved, median eyes less than their diameter apart and larger than those of anterior row; lateral eyes largest, separated from median by the diameter of one of them. *Clypeus* dark brown to black, often with an indistinct, median, light line. *Chelicera* dark brown to black clothed with long, light hairs. *Abdomen* with ground color of dorsum yellowish brown with darker patches outlining a median figure on the anterior half much as in D. scriptus; posterior half with a central, dark band broken into three or four chevrons the lateral ends of which bear a small, dull white spot. Sides of abdomen reddish or yellowish brown, venter usually with two narrow, light lines converging from ends of epigastric furrow to spinnerets. *Legs* usually banded above with dark brown on a ground color yellowish or reddish brown; femora above mottled; tibiae, metatarsi and tarsi each with two dark bands; legs below lighter, coxae usually without markings. *Sternum* yellowish brown darker on the margins; in immature specimens often with a median, light stripe as in D. scriptus.

Labium and endites dark reddish brown, lighter distally. *Epigynum* with the median lobe convex, hemispherical, bordered behind by the lateral lobes which are broadly in contact on the middle line.

Male (alcohol): length, 7.5mm to 12.5mm; legs (1-2)-4-3, 20-20-19-16mm; pl. 18, fig. 2; pl. 21, fig. 1.

Cephalothorax above much as in the female but with colors brighter and in greater contrast; submarginal, light bands distinct; light patches on sides of head covered with short, white hairs. *Chelicera* yellowish white with a broad dark longitudinal stripe on the front. Anterior half of abdomen above dark brown to black sometimes bordered on the sides with dull yellow; median figure obscure; chevrons on posterior half of abdomen sometimes united and bordered by dull yellow; sides of abdomen gray, venter somewhat lighter. *Legs* yellowish white with broken annulations; coxae yellow. *Sternum* margined with dusky, center yellow. Tibia of palpus short; the external apophysis broad, concave internally, and armed at each distal corner with a sharp tooth; sometimes one or two teeth between the lateral ones. The median apophysis of the bulb sharply angled at the middle of its length, basal half strongly swollen in the middle.

Synonymy

Dolomedes tenebrosus Hentz, Bost. Jour. Nat. Hist., 1843, 4:396, pl. 19, figs. 10–13

Dolomedes tenebrosus Hentz, Reprint, Occ. Papers Bost. Nat. Hist., 2, 1875, p. 38, pl. 5, figs. 10–13

Dolomedes tenebrosus, Marx, Proc. Nat. Mus., 1890, 12:566

Dolomedes tenebrosus, Banks, Proc. Acad. Nat. Sci. Phila., 1892, 44:73

Dolomedes tenebrosus, Marx, Proc. Ent. Soc. Wash., 1892, 2:160

Dolomedes tenebrosus, Fox, Proc. Ent. Soc. Wash., 1892, 2:269

Dolomedes tenebrosus, Banks, Jour. N. Y. Ent. Soc., 1895, 3:91

Dolomedes tenebrosus, Banks, Ent. News, 1895, 6:206

Dolomedes tenebrosus, Slosson, Jour. N. Y. Ent. Soc., 1898, 6:248

Dolomedes idoneus Montgomery, Proc. Acad. Nat. Sci. Phila., 1902, 54:588–590, pl. 30, fig. 51

Dolomedes idoneus Montgomery, Proc. Acad. Nat. Sci. Phila., 1903, 55:654

Dolomedes tenebrosus, MacGillivray and Houghton, Ent. News, 1903, 14:262

Dolomedes tenebrosus, Britcher, Proc. Onon. Acad. Sci., 1903, 1:129

Dolomedes idoneus Montgomery, Proc. Acad. Nat. Sci. Phila., 1904, 56:319

Dolomedes tenebrosus, Ruthven, Rep't, State Board Geol. Surv. Mich., 1906, p. 100

Dolomedes tenebrosus, Banks, Ind. Dep't Geol. and Nat. Res. 31st Ann. Rep't, 1907, p. 743

Dolomedes idoneus, Bryant, Occ. Papers Bost. Soc. Nat. Hist., 7, 1908, p. 79

Dolomedes idoneus, Emerton, Trans. Conn. Acad., 1909, 14:211, pl. 7, fig. 8

Dolomedes vernalis Emerton, ibid., pp. 211-212, pl. 7, figs. 7, 7*d*

Dolomedes tenebrosus, Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 53
Dolomedes vernalis, Banks, Proc. Acad. Nat. Sci. Phila., 1911, 63:452
Dolomedes tenebrosus, Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:542
Dolomedes vernalis, Petrunkevitch, ibid., p. 543
Dolomedes vernalis, Comstock, The Spider Book, N. Y., 1912, pp. 613–614, figs. 702–703
Dolomedes tenebrosus, Comstock, ibid., pp. 608–609, figs. 694–695
Dolomedes idoneus, Barrows, Ohio, Jour. Sci., 1918, 18:313
Dolomedes idoneus, Gibson, Ent. Soc. Ont., 47th Ann. Rep't 1917, p. 170
Dolomedes idoneus, Emerton, Trans. Roy. Can. Inst., 1919, 12:327

Remarks. Hentz's description of the species is brief but the figures are recognizable and I see no reason why his name should be discarded. Montgomery (1902) applied the name D. idoneus and has been followed by other writers in several instances. Emerton (1909) has pointed out, that the female described by him in 1885 under the name D. tenebrosus was a specimen of D. scriptus (fontanus Em.) and that the male of another species, D. vittatus (called D. urinator by Emerton) was described as D. tenebrosus. The true male of D. tenebrosus was described by Emerton under the name D. vernalis.

The difference in size of the sexes in the north is striking, the females averaging over 20mm in length, the males about 7.5-8mm. Males from the south are larger. A specimen from Baton Rouge, La., 12.5mm long, has the first legs 34mm and the third legs (the shortest) 29mm long. Two specimens from Virginia measure respectively 11 and 8mm; one from Washington, D. C., 9mm. New York and Ohio specimens are about 7.5mm long with the longest legs, first and second, about 21mm.

Habits. In the north adults of both sexes have been found in May, indicating earlier maturity than in the case of D. scriptus; it is in June, however, that mature specimens are commonly found. In the south the males may be fully grown early in the spring and at Baton Rouge, La., Comstock collected one in March.

It is probable that during the mating season this species may be found in the vicinity of water; later in the season, however, I have found many immature specimens a considerable distance from water in dry woods. In August on Valcour island, Lake Champlain, where females of D. scriptus had their nurseries in almost every rock crevice near water, many immature individuals of D. tenebrosus inhabited an old tent several hundred yards from the lake. A single mature female was found under a short board on the

hard ground. An immature male was found in May at Thacher Park, Albany county, halfway up a dry hillside on a log. Since immature specimens of all sizes have been found late in the fall, it is evident that neither this species or D. scriptus matures in one season; in fact immature specimens have been found in hibernation in November at Ithaca, N. Y. The species in the north is not common compared with D. scriptus but farther south, in Virginia and Maryland they occur in great abundance.

Various species of this genus have been recorded as capturing and feeding on fishes. McCook (v. 1, p. 235) mentions a case in which a fish three and one-fourth inches long was captured and drawn from the water by a spider only three-fourths of an inch in length. More recently, Thomas Barbour has recorded the capture of small Cyprinodonts by spiders identified as Dolomedes tenebrosus (Psyche, 1921, 28:131-132).

Distribution. *Ottawa, DeGrassi Point, Ont.; Truro, N. S.; Chelsea, DeGram Point, Quebec; Falmouth, Me.; Franconia, Three Mile island, Lake Winnipesaukee, N. H.; Vermont; New Haven, Simsbury, Conn.; Blandford, Mass.; Crosswicks, N. J.; West Chester, *Shawanese lake, Pa.; in New York specimens examined from *Hemlock lake; *Gloversville; *Thacher Park, Albany county; *Mountain lake; *Berkshire, Tioga county; *Ithaca; *Valcour island, Lake Champlain; *Deer island, Thousand islands; *Keene Valley, Essex county; *Axton; *Manlius, Onondaga county; *Cold Spring Harbor, L. I.; *Juanita island, Lake George; Maryland specimens from *Clearspring; *Wolfville; *Hagerstown; *Meyersville; *Cabin John; *Sycamore island; *Plummers island; Delescarlia reservoir; *Great Falls; *Cedargrove; *Glen Echo; *Forest Glen and *Receiving reservoir; *Rock Creek, *Potomac river, *Washington and *Eastern Branch, D. C.; Falls Church, *Black pond, *Langley, *Scott's Run, *Fort Monroe, Va.; *Clifton, Ky.; *Woodville Greenecastle, *Wilders, *Wyandotte, Ind.; Porcupine mountains, *Douglas lake, *Isle Royale, Mich.; *Ames, *Jefferson, Iowa; *Pokegama lake, Minn.; *Walhalla, N. D.; *Gambier, *Rockbridge, *Olive, and *Highland county, Ohio; Gangers, Ill.; Swannanoa valley, N. C.; *Memphis, *Beersheba, Tenn.; *Columbia, Mo.; *Baton Rouge, La.; *Billy's island, Okefinokee swamp, *Thompson's Mills, *Rosswell, Ga.; *Letura, Coosa river, Ala.; *Brownwood, Texas; *Archer, Fla.; *Fort Yuma, Ariz.

Dolomedes scriptus Hentz

Bost. Jour. Nat. Hist., 1845, 5:189, pl. 16, fig. 1

Type: Dolomedes scriptus Hentz; type specimen not known to exist
Type locality: Alabama
Female (alcohol): length 17.5-24mm; average of 15 mature specimens, 20.6mm; legs 4(2-1)-3, 39-35-35-33mm; pl. 22; pl. 24, fig. 2

Cephalothorax above light to dark brown; a narrow, median, light line originating between the middle eyes of the second row extends to the posterior margin of cephalothorax; in front of dorsal groove a pair of small, wedge-shaped spots clothed with short, black hairs (in a rubbed specimen, the spots are often absent); regularly curved, light lines, inclosing an oval area, extend from the median sides of the posterior lateral eyes to the wedge-shaped marks; thorax narrowly margined with black and on each side a broad, submarginal, dusky yellow band often broken into oblique spots; eye area dark. *Eyes*: anterior row in a slightly recurved line; median separated by about the diameter of one of them, a little larger than lateral; lateral eyes less than the diameter of one of them from the median; posterior row strongly recurved, larger than anterior; the median separated by the diameter of one of them, a little further from the lateral. *Clypeus* dark brown to black, often with a median vertical light line. *Chelicera* reddish brown, clothed with mixed white and brown hairs, the white predominating. *Abdomen:* Anterior half of abdomen above dark brown with a median, light stripe bifurcating posteriorly; on each side, an oblique, light line joins the median one near the middle of its length, the acute angle inclosed having its apex directed forward; at the juncture of the oblique lines with the median stripe, there is often on each side a curved, light line extending forward to meet the median line on the front margin of the abdomen; posterior half of abdomen crossed by three or four transverse, W-shaped white or yellowish white lines with the intervals between them brown or black; sides of abdomen light brown or grayish; venter uniform light brown. *Legs* and palpi with the ground color somewhat lighter than that of the thorax; above more or less distinctly annulate and bearing numerous dark brown and white hairs in patches, and conspicuous spines; beneath, lighter, yellowish or greenish gray; metatarsi and tarsi distinctly scopulate; coxae immaculate. *Sternum* dark brown with a median, often branched, light, longitudinal line. *Labium* and endites brownish yellow, lighter distally. *Epigynum* reddish brown, broader than long with the median sides of the lateral

lobes evenly curved and extending forward about three-fourths the length of the epigynum; median lobe slightly excavated in front; behind, somewhat convex and attaining the posterior margin of the epigynum.

Male (alcohol): length, 13-16.25mm, average of five mature specimens, 14.5mm; legs 4-2-1-3, 40-38-37-35mm; pl. 23; pl. 24, fig. 1.

Body color and pattern in general like female; submarginal band of cephalothorax usually more distinct and often continued across the clypeus; chelicera yellowish; legs and palpi lighter, not annulate. Palpus: external apophysis of tibia near the middle of its length; broad, concave internally and armed distally with two large teeth. Median apophysis of the bulb well developed, narrow basally, broad distally and with the point turned toward the tip of the embolus.

Synonymy

Dolomedes scriptus Hentz, Bost. Jour. Nat. Hist., 1845, 5:189, pl. 16, fig. 1

Dolomedes scriptus Hentz, Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, pp. 38–39, pl. 6, fig. 1

Dolomedes fontanus Emerton Trans. Conn. Acad., 1885, 6:502, pl. 49, fig. 10 (male)

Dolomedes tenebrosus, Emerton, ibid., p. 501, pl. 49, fig. 9c (female nec male)

Dolomedes scriptus, Marx, Proc. Nat. Mus., 1890, 12:566

Dolomedes tenebrosus, Stone, Proc. Acad. Nat. Sci. Phila., 1890, 42:433, pl. 15, fig. 8

Dolomedes scriptus, Banks, Ent. News, 1891, 2:86

Dolomedes scriptus, Banks, Proc. Acad. Nat. Sci. Phila., 1892, 44:73

Dolomedes scriptus, Banks, ibid., 1916, 68:82 (Banks' specimens in collection of Cornell University are typical D. scriptus)

Dolomedes scriptus, Banks, Jour. N. Y. Ent. Soc., 1894, 2:52

Dolomedes scriptus, Slosson, ibid., 1898, 6:248

Dolomedes scriptus, Banks, Proc. Acad. Nat. Sci. Phila., 1901, 52:538

Dolomedes scriptus, Banks, Proc. U. S. Nat. Mus., 1902, 25:216

Dolomedes tenebrosus, Emerton, Common Spiders, 1902, pp. 87–88, figs. 213–214 (female nec male)

Dolomedes urinator, Montgomery, Proc. Acad. Nat. Sci. Phila., 1902, 54:586–590 (female)

(Montgomery described the female of D. scriptus but figured the epigynum of D. urinator)

Dolomedes scriptus, Britcher, Proc. Onon. Acad. Sci., 1903, 1:129 (Specimens are in the collections of the American Museum)

Dolomedes fontanus, Montgomery, Proc. Acad. Nat. Sci. Phila., 1904, 56:316–317, pl. 20, figs. 35–37

Dolomedes fontanus, Bryant, Occ. Papers Bost. Soc. Nat. Hist., 7, 1908, p. 79

Dolomedes fontanus, Emerton, Trans. Conn. Acad., 1909, 14:210–211

Dolomedes fontanus, Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 53

Dolomedes fontanus, Banks, Proc. Acad. Nat. Sci. Phila., 1911, 63:452

Dolomedes fontanus, Petrunkevitch, Amer. Mus. Nat. Hist. Bul. 29, 1911, p. 541

Dolomedes fontanus, Comstock, The Spider Book, N. Y., 1912, p. 609, figs. 696–698; p. 118, fig. 114

Dolomedes fontanus Emerton, Trans. Roy. Can. Inst., 1919, 12:327

Remarks. This species, the Dolomedes fontanus of Emerton, is clearly figured by Hentz. It is the only species of the genus with the abdomen marked with transverse, W-shaped, white lines although this pattern is approximated by D. tenebrosus. The markings of the cephalothorax are likewise distinctive, being much more prominently developed than in the related species. Hentz specimens, taken in March, were immature and on such individuals the wedge-shaped patches of dark hair on the cephalothorax are often indistinct (obsolete); even mature specimens when rubbed lose these spots. Emerton (1885) correctly figured the male palpus under the name D. fontanus; he described the female and figured the epigynum as that of D. tenebrosus but later (1909) he called attention to the error and corrected it. Montgomery (1902) described the female under the name D. urinator and from the several specimens of both species before him selected one of D. urinator to figure the epigynum. Banks (1892) records the species from Ithaca but in his revision he states that his specimens were the young of D. tenebrosus. These specimens are in the Cornell collection and are typically marked specimens of D. scriptus. Banks (1891) pointed to the right determination of the species when he wrote: "What I feel sure is D. scriptus H. has the epigynum as figured by Emerton (1885) for D. tenebrosus."

Habits. Dolomedes scriptus is the commonest species of the genus in the north. The hundred or more specimens collected were all found in the vicinity of water where they frequent old docks and boathouses or hide beneath stones and rubbish along the shores of ponds, lakes or streams. The females are most easily found and captured when burdened with their egg sacs or guarding the young in the nurseries; at such times they seldom try to escape and attack vigorously anything thrust within reach. The males reach maturity a month or so before the females, which are ready to mate about July 1st in the latitude of New York. In August the egg sacs are made and carried about in the chelicera until the young are ready to emerge; the sac is then attached to a convenient weed top or fastened to the side of a rock crevice between the strands that compose the nursery. The young moult at least once within the sac, escape through an opening at the bottom made by the mother, and shortly after moult again. For several days they may remain clustered about the deserted sac but if disturbed, they flow out along the strands of the nursery like a puff of smoke, a protective reaction to reduce mortality when attacked.

An hour later perhaps they will again be found in a compact mass which resembles a curled leaf or a dried burr. After leaving the nurseries, the young are often found a considerable distance away, hiding in the grass and leaf mold.

Distribution. This species is widely distributed in the east from Canada to Florida. Truro, Nova Scotia; Thousand islands, Ont.; * Fort Francis, La Sienne river, Can.; * Bethel, Poland, * Windham, Me.; * Hollis, Dublin, Franconia, Three Mile island, Lake Winnepesaukee, N. H.; * Hayward, * Woburn, Vt.; * South Meriden, Conn.; * Ramsey, N. J.; * Kingston, Pa.; * Columbus, Ohio; * Ames, Iowa; * Falls Church, Great Falls, * Scotts Run, Va.; * Broadwater, * Cabin John, * Beltsville, Md.; * Washington, D. C.; * Woodford county, Ky.; Roan and Black mountains, N. C.; * Glenhaven, Tenn.; Hot Springs, Ariz.; Fort Collins, Colo.; * St Louis, Mo.; Auburn, Pratt's Ferry, Alabama; * Arden, Fla. In New York State they are particularly numerous on the islands and along the shore of Lake Champlain and Lake George. Many specimens have been examined from * Valcour island, Lake Champlain; * Elizabeth island, * Juanita island, * Pearl point and * Kattskill bay, Lake George; others from *Albany; * Ithaca; * Locke; * Slingerlands; * Cazenovia; * Onondaga lake; * Pike pond; * Burden's lake, * Tackawasick pond, * Kinderhook lake and * East Greenbush, Rensselaer county; *Ashokan reservoir; *Merrill, Clinton county; * Chilson lake, Essex county; * Rider's Bridge, Columbia county.

Dolomedes vittatus Walckenaer

Hist. Nat. Ins. Apt., 1837, 1:347

Type: Dolomedes vittatus Walckenaer; type specimen not known to exist

Type locality: Ogechee river swamp, Ga., April 10th

Female (alcohol): Length 19.5mm; legs 4-(1-2)-3, 41-37-37-34mm; pl. 24, fig. 3; pl. 25

Cephalothorax above reddish brown or greenish gray densely clothed with short, red or gray hairs; extreme margin with a fringe of long, dark hairs; a broad, submarginal band of short, white hairs, very conspicuous when dry, extends from the posterior margin of the thorax along the sides, and narrowing crosses the clypeus; in front of the dorsal groove, a pair (sometimes united) of wedge-shaped patches of brown or black hairs; head within the curvature of the posterior eyes, somewhat more elevated than in other species of the genus; behind the posterior eyes, a fringe of long, yellowish hairs directed forward; reddish brown color of dorsum continued forward to include the eyes and upper third of clypeus. *Eyes:* an-

terior row slightly recurved; subequal in size and equidistant, scarcely the diameter of one of them apart; posterior row strongly recurved, almost twice the diameter of the anterior; the median separated by a little more than half the diameter of one of them; about their diameter from the lateral. *Chelicera* dark reddish brown, clothed with long, dull yellow hairs. *Abdomen* above dull reddish brown to black clothed densely with short, brown hairs; on the anterior half, an indistinct, median, lanceolate mark somewhat lighter; first two pairs of muscle impressions made conspicuous when dry by small patches of short, white hairs; broad bands of short, white hairs, one on each side of the abdomen are continuous with those of sides of cephalothorax; from each of these bands, behind the middle of the length of the abdomen a pair of short branches extend toward the disk; abdomen below, uniform reddish or grayish brown (yellow when dry) and densely clothed with mixed dull yellow and gray pubescence. *Legs:* femori mottled with dark gray or brown on lighter ground in some, others more or less annulate; remaining segments above uniform reddish brown or indistinctly banded; legs below uniform dull brown or dusky with faint indications of annulations. *Sternum* in old individuals dull brown, in immature specimens often with a light median line. *Labium* and endites reddish brown, lighter distally; endites scopulate distally with long, dull yellow hairs. The *epigynum* resembles that of D. u r i n a t o r but is less than twice as broad as long; the lateral lobes, rather widely separated anteriorly, are half as far apart behind (pl. 24, fig. 3).

There seem to be two color phases represented by females; in one the red tones predominate (usually old and mature specimens), in the other, gray.

Male (alcohol): Length 19mm; legs 4-1-2-3, 51-49-47-43mm; pl. 24, fig. 4; pl. 26

In this species the male is almost as large as the female and the legs are considerably longer; both sexes have the same color pattern although it is often more highly developed in the male where the lateral light bands of the cephalothorax stand out in strong contrast with the darker disk. Anterior median eyes slightly larger than and closer to the anterior lateral than to each other. External apophysis of tibia of the palpus, broad, convex externally and provided with two or three teeth at the tip; a large, blunt tooth on the tibia near base of apophysis, above and below; a cluster of basally stout, apically slender spines on the ventral side of tibia below base of apophysis. Femur of fourth legs beneath with a spinose hump.

Synonymy

Dolomedes vittatus Walckenaer, Historie Naturelle des Insectes Apteres, 1837, 1:347 (Abbot, pl. 5, fig. 21)
Dolomedes lanceolatus Hentz, Jour. Bost. Soc. Nat. Hist., 1847, 5:191, pl. 17, fig. 12 (male)
Dolomedes lanceolatus Hentz, Proc. Bost. Soc. Nat. Hist., 1868, 11:103
Dolomedes lanceolatus Hentz, Reprint, Spiders of the U. S., Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, p. 40 pl. 7, fig. 12 (male)
Dolomedes tenebrosus, Emerton, Trans. Conn. Acad., 1885, 6:501, pl. 49, figs. 9*a*, 9*b* (male)
Dolomedes vittatus, Marx, Proc. Nat. Mus., 1890, 12:566
Dolomedes lanceolatus, Marx, Proc. Nat. Mus., 1890, 12:566
Dolomedes urinator, Banks, Jour. N. Y. Ent. Soc., 1895, 3:91 (male)
Dolomedes urinator, Montgomery, Proc. Acad. Nat. Sci. Phila., 1904, 56:317–318 (male)
Dolomedes urinator, Emerton, Trans. Conn. Acad., 1909, 14:211 (male)
Dolomedes vittatus, Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:543
Dolomedes urinator, Comstock. The Spider Book, N. Y., 1912, pp. 612–613, fig. 701 (male)

Remarks. Under the synonymy of this species, I have included besides the original description of the female by Walckenaer and the male (D. lanceolatus) by Hentz, only those references, which by their context, show that the male was under consideration. Banks (1891) in his "Notes on Some Spiders Described by Hentz," expressed the opinion that Dolomedes urinator and Dolomedes lanceolatus were female and male of the same species, and the decision has received general acceptance. But Walckenaer described and Abbot figured a female having the markings of the male described as D. lanceolatus and I have since found several specimens which agree in size, color and markings to such an extent that it is impossible to reach any other conclusion than that Dolomedes urinator is distinct and known only from the female.

Emerton (1885) described the male of Dolomedes vittatus as Dolomedes tenebrosus but later (1909) remarked: "The male spider described by me in 1885 as the male of D. tenebrosus appears to be urinator or lanceolatus Hentz. I have not found females but have one from Pennsylvania sent me by Mr Montgomery." Montgomery (1904) under his description of D. urinator included an account of a male, using one of the specimens previously figured by Mr Emerton. I have seen this specimen through the courtesy of Mr Emerton and it is a typical male of D. vittatus (lanceolatus); but Montgomery likened it to D. urinator which it little resembles.

Simon considered D. tenebrosus Hentz a synonym of Dolomedes rufus but figured (Hist. Natur. des Araignées, 2d ed., 1898, 2:302, fig. 309*a*) apparently following Emerton, the tibial apophysis of Dolomedes vittatus.

Habits. This may be considered one of the rarer species in the north, particularly when the females are considered; at least they are not common in collections or abundant in the field. Abbot's specimen was . . . "taken, 10th April on the body of a tree in Ogechee river swamp, very rare." Hentz's remarks, which apply to the male follow: "This spider is always found near or on water, running on it with surprising agility, preying on large aquatic insects. . . . This spider can dive and stay a considerable time under water, to avoid its enemies. It was found in March in Alabama under stones near a stream of water." Emerton's mature male was taken at Beverly, Mass., July 1, 1877, on or under stones near a brook; an immature male in the Fox collection at Cornell University was taken at Glenhaven, Tenn., in June or July; other males from Massachusetts and New York were immature in September and October. Females mature as early as the first week in June, perhaps earlier; one taken at Bee Spring, Ky., June 8, 1874, is the type of the figures here given, of the adult and epigynum. The males mature earlier in the season; one taken April 18th moulted May 11th (when it became mature) and died May 24th.

Distribution. Hentz lists the species, of which he apparently had only males, from Massachuetts, North Carolina, South Carolina and Alabama. Banks had a male from Long Island; others from * Purgatory swamp, Milton, * Beverly, * Dighton, Mass.; * Hollis, N. H.; * Green lake, Onondaga county, * New Rochelle, * Rensselaer, * Nassau lake, Rensselaer county, New York; * Falls Church, * Plummer's island, * Black pond, Va.; * Cabin John, * Cedargrove, Md.; * District of Columbia; * Olney, Ill.; * Raleigh, N. C. I have recently (June, 1923) found the females to be fairly common in a tamarack swamp near Voorheesville, N. Y.

Dolomedes triton triton Walckenaer

Hist. Nat. Ins. Apt., 1837, 1:340

Type: Lycosa triton Walckenaer; type specimen not known to exist
Type locality: Georgia
Female (alcohol): length, average, 19.5mm; legs 4-1-2-3, 29-26-26-25mm; pl. 27; pl. 30, fig. 2-3

Cephalothorax above greenish gray to reddish brown, clothed with short, dark brown hairs; a broad, submarginal, light stripe in the integument clothed with short, white hairs; extreme lateral margins

often black; back of posterior eyes an oval area lighter, inclosed by a narrow, yellowish white line; a narrow, light line through the dorsal groove extends to the second row of eyes. *Eyes* of anterior row in a slightly recurved line, median slightly larger than lateral and closer to them than to each other; eyes of posterior row in a strongly recurved line, equal in size or nearly so, one-third larger than anterior; median separated by a little less than the diameter of one of them, somewhat more than their diameter from the lateral. Lower half of clypeus with a dense band of short, white hairs which joins the lateral bands of the cephalothorax; width of clypeus about 4 times the diameter of an anterior median eye. *Chelicera* yellowish or reddish brown, clothed with long, dark hair. *Abdomen* above varying from greenish gray to dark brown and bordered on each side by a broad band of white hairs more or less indistinct in alcohol; on the basal half, a median, lanceolate, light stripe and two pairs of small, white dots; on the posterior half, four pairs of white dots in two widely separated lines between which are four minute, white dots, often obsolete or wanting in old or rubbed specimens. *Legs* above colored as cephalothorax, without distinct bands or stripes; below lighter; distal joints sometimes darker. *Sternum* with three black dots on each side near the coxae. *Labium* and endites yellowish or reddish brown, lighter distally. *Epigynum* median lobe is scarcely developed on the anterior half; posteriorly it separates the lateral lobes and terminates in a rounded hump (pl. 30, fig. 2).

Male (alcohol): length, 13mm; legs, 4-1-2-3; 34-32-29-28mm; pl. 28; pl. 30, figs. 1, 4

General pattern as in female but with colors often brighter and tending more to yellow, brown or reddish brown; spots of abdomen usually quite distinct and lateral light bands, bright silvery white; black spots on sternum often connected to form irregular bands. Femur of fourth legs beneath, in adult males, with a spinose hump (pl. 30, fig. 4). Palpus: the extraordinary development of the tibial apophysis immediately distinguishes this form from all other species of Dolomedes; it is greatly elongated, spoon-shaped distally and is somewhat constricted near the base (pl. 30, fig. 1). The bulb of the palpus resembles closely that of D. albineus.

The form described above must be regarded as typical and it apparently occurs only in the south. A dozen specimens in the collections of Cornell University and the State Museum exhibit clearly those color characters described by Walckenaer[1] and figured

[1] Walckenaer, Ins. Apt. 1837, 1:340, *Lycosa triton.*

by Abbot.[1] Walckenaer's description of the species follows: "Abdomen en ovale allongé fauve, à dos blanc sur ses côtés, et au milieu seize points d'un blanc-bleuâtre clair, six de chaque côté disposés longitudinalement, et quatre plus petits placés sur deux lignes transversales au-dessus de l'anus. Corselet allongé fauve, borde d'une raie branche sur les côtés. Pattes fauves mouchetées de taches plus foncées."

The description fits Abbot's figure except that he mentions sixteen bluish white points instead of fourteen as indicated in the drawing. Evidence that Walckenaer had a specimen before him is also indicated by the fact that he gave the length as nine lignes whereas the drawing is considerably larger. This is Abbot's "water spider" and the following note accompanies the drawing: "Taken June 4th. It makes no web and keeps on the water in ponds, springs and brooks, running on the water as if on the ground. It retreats under logs, boards etc., preying on the insects it meets with, principally such as fall into it, not very common."

Specimens having the wide thoracic band I have found only in collections from Georgia, chiefly from various localities in the Okefinokee swamp. Mature females were taken in June on Billy's island; other specimens were taken from Minnie lake, Billy's lake, and the surrounding cypress bays.

Dolomedes triton sexpunctatus Hentz

Plate 29, figures 1–2

This subspecies, which is the familiar form in the north, also occurs in all the South Atlantic states and differs in the arrangement and extent of the color areas and in the smaller size of the males. In this species the light integument and white-haired submarginal band[2] of the cephalothorax is reduced to a line which is not continued across the clypeus; the white spots of the abdomen are usually arranged in two rows of five or six each, the posterior ones becoming indistinct in old or rubbed specimens. The females may be as large as those of the typical form, but the males average but 9mm in length. A large male from Georgia measures 13mm. The structure of the palpi and epigyna in the two varieties affords no grounds for their separation as distinct species although there may be slight differences noted in the shape of the tibial apophyses. In young mature males from the north, there is a more or less prominent spur or blunt tooth at the base of the apophysis which is reduced in older specimens and lost in the southern form. Dolomedes sex-

[1] Abbot, Georgia Spider, pl. 10, fig. 01.

[2] The submarginal light band of cephalothorax often yellow in life.

punctatus Hentz is this subspecies, the name having reference to the six black dots on the sternum. Hentz figures an immature male and a small female.[1]

Synonymy

Lycosa triton Walckenaer Hist. Nat. Ins. Apt., 1837, 1:340

Dolomedes sexpunctatus Hentz, Jour. Bost. Soc. Nat. Hist., 1845, 5:191, pl. 16, figs. 5, 6

Dolomedes scapularis Koch, Die Arachniden, 1848, 14:119–120, pl. 486, fig. 1354

Dolomedes sexpunctatus Hentz, Scudder's Supplement, Proc. Bost. Soc. Nat. Hist., 1868, 11:103, fig. 55

Dolomedes sexpunctatus Hentz, Reprint, Spiders of U. S., Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, p. 41, pl. 6, figs. 5, 6, pl. 18, fig. 55.

Dolomedes scapularis, Keyserling, Verh. Zool. Bot. Ges. Wien., 1876, 26:676, pl. 2, fig. 49

Dolomedes sexpunctatus, Emerton, Trans. Conn. Acad., 1885, 6:501, pl. 49, figs. 8, 8*a*

Dolomedes sexpunctatus, Stone, Proc. Acad. Nat. Sci. Phila., 1890, 42:433

Dolomedes sexpunctatus, McCook, American Spiders, 1889; 1:347, fig. 339 (nursery web)

Dolomedes sexpunctatus, McCook, American Spiders, 1890, 2:145, 146, figs. 177, 178; 3:24

Dolomedes sexpunctatus, Marx, Proc. U. S. Nat. Mus., 1890, 12:566

Dolomedes sexpunctatus, Davis, Ent. News, 1891, 2:77

Dolomedes sexpunctatus, Fox, Proc. Ent. Soc. Wash., 1891, 2:269

Dolomedes sexpunctatus, Marx, Proc. Ent. Soc. Wash., 1891, 2:160

Dolomedes sexpunctatus, Banks, Proc. Acad. Nat. Sci. Phila., 1892, 44:73

Dolomedes sexpunctatus, Baker, Ent. News, 1894, 5:164

Dolomedes sexpunctatus, Banks Ent. News, 1895, 6:206

Dolomedes sexpunctatus, Emerton, Trans. Conn. Acad., 1895, 9:428

Dolomedes sexpunctatus, Slosson, Jour. N. Y. Ent. Soc., 1898, 6:248

Dolomedes sexpunctatus, Banks, Proc. Acad. Nat. Sci. Phila., 1901, 52:538

Dolomedes sexpunctatus, Banks, Jour. N. Y. Ent. Soc., 1901, 9:186

Dolomedes sexpunctatus, Emerton, Common Spiders, 1902, p. 85, figs. 210–212

Dolomedes sexpunctatus, Montgomery, Proc. Acad. Nat. Sci. Phila., 1903, 55:654, pl. 29, fig. 5

Dolomedes sexpunctatus, Britcher, Proc. Onon. Acad., 1903, 1:129

Dolomedes sexpunctatus, Banks, Proc. Acad. Nat. Sci. Phila., 1904, 56:136

Dolomedes sexpunctatus, Montgomery, Proc. Acad. Nat. Sci. Phila., 1904, 56:314–315

Dolomedes sexpunctatus, Scheffer, Trans. Kan. Acad. Sci., 1905, 19:192

Dolomedes sexpunctatus, Banks, 36th Ann. Rep't Dep't Geol. Nat. Res., 1906, p. 743

Dolomedes sexpunctatus, Bryant, Occ. Papers Bost. Soc. Nat. Hist., 7, 1908, p. 80

[1] Spiders of the U. S., 1875, p. 41, pl. 6, figs. 5, 6.

Dolomedes sexpunctatus, Emerton, Trans. Conn. Acad., 1909, 14: 210, pl. 7, figs. 6, 6*a*, 6*b*
Dolomedes sexpunctatus, Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 53
Dolomedes triton, Petrunkevitch, Ann. Acad. Sci., 1910, 19:219–220
Dolomedes triton, Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:542
Dolomedes sexpunctatus, Banks, Proc. Acad. Nat. Sci. Phila., 1911, 53:452
Dolomedes sexpunctatus, Comstock, The Spider Book, 1912, p. 614–616, figs. 704–706
Dolomedes sexpunctatus, Emerton, Ent. News, 1914, 25:118
Dolomedes sexpunctatus, Banks, Proc. Acad. Nat. Sci. Phila., 1916, 68:82
Dolomedes sexpunctatus, Pratt, Manual of Common Invertebrates, 1916, p. 432
Dolomedes sexpunctatus, Barrows, Ohio Jour. Sci., 1918, 18:313
Dolomedes sexpunctatus, Emerton, Ent. News, 1919, 30:168
Dolomedes sexpunctatus, Emerton, Trans. Royal Can. Inst., 1919, 12:327
Dolomedes sexpunctatus, Krecker, Ohio Jour. Sci., 1919, 19:440, 459, 472
Dolomedes sexpunctatus, Kraatz, Ohio Jour. Sci., 1921, 21:173

Remarks. Comstock[1] described two forms of the male, which he characterized as follows: "Type *a*.— In this form the width of the clypeus is about equal to the space between the anterior median eyes and the posterior median eyes; the posterior median are but little if at all larger than the anterior median eyes; the anterior row of eyes is longer than in *Type b;* and the femur of the fourth pair of legs lacks the spinose hump characteristic of *Type b*.

"Type *b:* This type of male is easily recognized by the presence of a spinose hump under the femur of the fourth legs. The width of the clypeus is two or three times as great as the space between the anterior median eyes and the posterior median eyes; the posterior median eyes are much larger than the anterior median eyes; and the anterior row of eyes is but little longer than the row formed by the posterior median eyes."

I have been unable to find a mature male of D. triton with the characters of Comstock's type *a* although material from many collections, including the Cornell University series, has been carefully examined. The spinose hump on the lower side of the femur of the fourth legs reaches full development as a secondary sexual character with the moult that frees the palpal organs, although it may be indicated some time before by a few stiff hairs.

Habits. Of all our species of Dolomedes this is perhaps the most truly aquatic. It is found in swamps, on marshes and ponds or the still reaches of sluggish streams, running on the surface or diving below to hide on the under surface of leaves or stems of aquatic

[1] The Spider Book, p. 614.

vegetation (pl. 31). A film of air entangled in the hairy coat serves as a reservoir and disguise, and permits submersion for one-half an hour or longer. In the north immature males and females spend the winter hibernating in rubbish along the shores of ponds or streams or in the heaped up débris of muskrat houses. In May or early June the males mature and may be found in numbers, pursuing over the water a solitary female who may not yet be ready to receive their advances; a little later, however, mating takes place and shortly the egg sac appears and is carried about until the young are ready to emerge. I have not collected the nursery web of this species but McCook [1] gives figures of two which are of the usual form.

Dolomedes triton resembles in habits and markings the Dolomedes fimbriatus of Europe which is said to construct a raft of floating leaves used as a resting and watching place for passing insects.

Distribution. Newfoundland; * Winnipeg, Lake of the Woods, Ottawa, Aweme, Manitoba, Canada; * Hollis, Franconia, N. H.; Wellesley, Dorchester, Swampscott, Amherst, Reading, Dedham, Ipswich, Riverside, Wood's Hole, Mass.; New Haven, Conn.; * Brittons, * Long Branch, Onondaga county, * Ithaca, * McLean, * Kenwood, * Albany, * Baldwin, * Grasmere Station, S. I., * Clyde, * Sodus Bay, N. Y.; * Trenton, * Lakehurst, Point Pleasant, N. J.; Philadelphia, Pa.; * Malta, * Columbus, Sandusky, Ohio; * Greencastle, * Buffington, Hammond, Lake Tippecanoe, Ind.; Libertyville, Glencoe ravine, Ill.; Agricultural College, Miss.; Douglas lake, Mich.; St George, Kan.; * Washington, Rock creek, Potomac river, District of Columbia; * Baltimore, Hyattsville, Md.; Great Falls, Va.; * Raleigh, Swannonoa Valley, N. C.; * Minnie Lake run, * Billy's island, * Billy's lake, * Mixon's Hammock, * Honey island Prairie Okefinokee swamp, *Fargo, Ga.; *Columbia, Springfield, Mo.; * Baton Rouge, New Orleans, La.; Auburn, Gallant, Magnolia Springs, Ala.; * Beersheba, Tenn.; Lake Worth, Fla.; Austin, Texas.

Dolomedes triton triton seems to be confined to the south. I have examined specimens from Billy's island, Billy's lake and Minnie lake, Okefinokee swamp, Ga.

Several immature specimens from Olympia, Wash., in the collection of the Museum of Comparative Zoology, are indistinguishable from D. triton sexpunctatus, but it is likely that mature individuals would exhibit characters at least of subspecific value.

[1] American Spiders, v. 1, p. 347; v. 2, p. 145, fig. 177.

Dolomedes albiclavius nov. sp.

Type: A mature female in the collection of the Museum of Comparative Zoology, Cambridge, Mass., Nathan Banks, collector

Type locality: Springfield, Mo.

Female (alcohol): length 22mm; legs 4-1-2-3; 47-40-39-38mm; pl. 32; pl. 33, fig. 4

Cephalothorax above deep reddish brown; behind the posterior eyes an oval area of lighter brown through the center of which a longitudinal, light line extends to the dorsal groove; sides of the cephalothorax each with a broad submarginal band of short, white hairs extending from the lateral margins of the clypeus to the posterior margin of the thorax and coincident with a light stripe in the integument. *Eyes* each surrounded with a narrow, black ring; spaces between with short, white, and scattered, long and stiff, brown hairs; anterior row slightly recurved; the median, separated by less than the diameter of one of them, are a little larger than the lateral and closer to them than to each other; posterior row strongly recurved, eyes subequal in size; the median slightly less than their diameter apart, one and one-fourth times their diameter from the lateral. *Clypeus* brown with indistinct patches of short, white hairs. *Chelicera* deep brown to black clothed with long, yellowish pubescence. *Abdomen* above uniform dark brown clothed densely with short, brown hairs; upper half of sides of abdomen with a broad band of dirty white hairs not very distinct in alcohol; lower half and venter brownish and covered densely with dull yellow pubescence. *Legs* above deep brown, indistinctly mottled on the femora and clothed with short, brown hairs; below lighter with mixed yellow and brown hairs; metatarsi and tarsi scopulate beneath. *Sternum* reddish brown, darker on the margins, produced to a point behind and with the sides broadly notched at the bases of the coxae. *Labium* and endites deep brown to black, lighter distally. *Epigynum:* lateral lobes widely separated behind as in D. triton, the median lobe, from the posterior margin, extends forward three-fourths the length of the epigynum (pl. 33, fig. 4).

The male is not known.

Remarks. This large and distinct species is evidently related to Dolomedes triton but differs from it in the structure of the epigynum, in its general darker color and lack of paired white spots on the dorsum of the abdomen. The legs are proportionally and actually longer in this species than in D. triton and the body more robust.

Distribution. *Springfield, Mo., *Salt Lake, Utah; *Billy's island, Okefinokee swamp, Ga.

Dolomedes striatus Giebel

Zeit. Ges. Natur., 1869, 33:252

Type: Dolomedes striatus Giebel; type specimen not known to exist

Type locality: Illinois

Female (alcohol): length 13mm; legs, 4-1-2-3, 25-22.5-21.5-21mm; pl. 33, fig. 1; pl. 34, fig. 2

Cephalothorax above reddish brown, clothed with short, brown hair; back of the eyes an oval area, lighter, extending to the dorsal groove; sometimes a median, light line from posterior median eyes to rear margin of thorax through dorsal groove; on each side of cephalothorax a dusky yellow or white line extending from anterior lateral margin of clypeus to posterior margin of thorax; lateral, light lines parallel with the dorsal groove, not following margins of the cephalothorax. *Eyes* each surrounded by a black ring; eyes of anterior row subequal in size and forming a straight line; median separated by slightly less than the diameter of one of them, a little closer to the lateral; posterior eyes in a strongly recurved line; subequal in size; the median, separated by the diameter of one of them, are almost twice the size of the anterior median; posterior lateral separated from median of same row, by twice the diameter of one of the latter. *Clypeus* dark reddish brown with a median, vertical, light mark. *Chelicera* reddish brown clothed with long, yellow hairs and indistinctly marked with a net work of gray lines. *Abdomen* above dark brown punctuated with minute, light brown spots and clothed with short, dark brown pubescence; a median, basal mark dusky yellow, short in some, in others, lanceolate; on each side, a dull yellow stripe in the integument clothed with light yellow hair is continuous with the lines of the cephalothorax; sides of abdomen with dull yellow pubescence; venter with several alternating stripes of dull yellow and brown from epigastric furrow to spinnerets. Femora of the legs above with three longitudinal stripes of gray on the reddish brown ground; femora below more or less mottled; patellae and tibiae less distinctly striped, reddish or orange-brown; metatarsi and tarsi clear reddish brown, not striped; coxae mottled with dark brown. *Sternum* dark brown to black. *Labium* dark reddish brown, endites somewhat lighter. *Epigynum:* anterior third of median lobe excavated, behind convex; lateral lobes strongly chitinized along inner edges, converging behind to a point on the middle line. Pl. 37, fig. 1.

The male has not been described.

Synonymy

Dolomedes striatus Giebel, Zeitschrift fur die Gesammten Naturwissenschaften, 1869, 33:252
Dolomedes striatus, Marx, Proc. Nat. Mus., 1890, 12:566
Dolomedes striatus, Banks, U. S. Nat. Mus. Bul. 72, 1910, p. 53 (Regarded by Banks as a synonym of *D. tenebrosus* Hentz)
Dolomedes striatus, Petrunkevitch, Bul. Amer. Mus. Hist., 1911, 29:542 (Here considered as a synonym of *D. tenebrosus* Hentz)
Dolomedes sexpunctatus, Emerton, Trans. Conn. Acad., 1909, 14:210 (in part) pl. 7, fig. 6

Remarks. The specimens described by Giebel from Illinois were small, only 6mm long, and doubtless immature. This species which has apparently been confused with Dolomedes triton Walckenaer, is distinct in size, proportions, color pattern and structure of the epigynum; in fact there is a strong superficial resemblance to D. fimbriatus (Clerck). In D. triton, the light, longitudinal stripes of the cephalothorax whether narrow or broad are submarginal; in D. striatus, these stripes are parallel with the dorsal groove and a considerable distance from the lateral margins of the thorax. The abdomen of D. striatus above is uniform reddish brown except for the median, basal mark; on D. triton the abdomen above bears several pairs of small, white spots arranged in lines. The femora of the legs of D. striatus are conspicuously marked above with longitudinal stripes, characters lacking in D. triton. The median lobe of the epigynum in D. striatus extends to the anterior margin and the median extensions of the lateral lobes are contiguous behind; in D. triton the median lobe is confined to the posterior half of the epigynum and the lateral lobes are not in contact behind. D. striatus is one-third smaller than D. triton. The specimen figured by Emerton (Trans. Conn. Acad., 1909, 14:210, pl. 7, fig. 6) is apparently this species.

Habits.[1] Nothing has been written concerning the habits of this species but it is likely they do not differ greatly from D. triton in view of the fact that it has been mistaken for that species. The scopulate metatarsi and tarsi indicate that it, like other members of the genus, is in the habit of running on the surface of the water. A female with egg sac was collected at Bay St George, Newfoundland, in July; other mature females from Pine island, New York, September 8th.

[1] On September 3, 1923, a female D. striatus and recently hatched young were found in a nursey web attached to grass and weed tops in a swale near Kinderhook, N. Y. The nursery resembled that of Dolomedes triton or some of the late season webs of Pisaurina mira. The egg sac was comparatively small, about three eighths of an inch in diameter, and attached to one side of the mass of entangled weeds and grass.

Distribution. Illinois; *Stephensville Crossing, Bay St George, Newfoundland; *Pine island, *McLean, *Ringwood and *Ithaca, N. Y.; *Douglas lake, Mich.

Dolomedes fulviatronotatus nov. sp.

Type: a mature female in the collection of the Museum of Comparative Zoology, Cambridge, Mass.
Type locality: Tamarac swamp, Pistakee, Ill., August 4, 1912, Nathan Banks collector.
Female (alcohol): length, 11mm; legs 4-1-2-3, 21-20-18-17mm; pl. 19, fig. 3; pl. 34, fig. 1

Cephalothorax above yellowish brown; in front of dorsal groove a pair of small, wedge-shaped patches of black hair; a broad, median band composed of irregular, dark spots in the integument and short, brown hairs, extends from the anterior ends of the wedge-shaped marks to posterior margin of thorax; a marginal row of irregular, black spots on each side of the thorax and a small, dark patch behind each posterior lateral eye. *Eyes* each surrounded by a black ring; those of the anterior row in a straight line, subequal in size and equidistant, less than the diameter of one of them apart; eyes of posterior row subequal in size, one-third larger than anterior, in a strongly recurved line; the median separated by the diameter of one of them, one-fourth farther from the lateral. The width of the clypeus is 3 times the diameter of one of the anterior eyes. *Chelicera* orange-yellow, lightly marked with dusky on the front and bearing irregular rows of long, yellow hair. Ground color of *abdomen* above, yellowish brown; on the anterior half, a median, lanceolate, black-edged mark; on the posterior half, three lines of black which converge at the tip of the abdomen, the middle line composed of irregular spots which diminish in size posteriorly, the outer lines irregular but continuous; on each side of the point of basal, lanceolate mark, a conspicuous, rounded black spot. Sides of abdomen dusky yellow with narrow, ill-defined, longitudinal lines of brown; venter of abdomen with three brown stripes extending from epigastric furrow to spinnerets; the median distinct and separated from the others by the yellow of the ground color. *Sternum* dark brown with black spots each side near the margin and a median, light line on the posterior half. *Labium* and endites yellow, lighter distally. *Legs* yellow with irregular patches of black around bases of spines and scattered between, more numerous below than above. *Epigynum* slightly broader than long; median lobe twice as long as broad,

shallowly excavated in front; lateral lobes with strongly chitinized inner margins; the median extensions of the lateral lobes behind are short and widely separated by the median lobe.

Remarks. The diagnostic characters in so far as they are revealed in the female are those of Dolomedes, although in its color pattern it differs widely from other members of the genus. The anterior piece of the lorum of the pedicle is notched behind to receive the posterior piece, the lower margin of the furrow of the chelicera is armed with four evenly spaced teeth and the area of the median eyes is wider than long.

The male is not known.

Dolomedes pinicola (Hentz)

Bost. Jour. Nat. Hist., 1850, 6:287, pl. 10, fig. 14

Type: Micrommata pinicola Hentz; type specimen not known to exist
Type locality: South Alabama
Female, immature (alcohol): length, 11.5mm; legs 4-(1-2)-3,17-(15.5-15.5)-14mm; pl. 35.

Cephalothorax light yellowish brown above thickly clothed with short, wavy, white hair; extreme margin with a narrow fringe of stiff, black hairs directed forward; cephalic part elevated more prominently than in the other members of the genus. *Eye* area dusky; anterior row recurved, median separated by one-half the diameter of one of them, one-third larger than the lateral and nearer to them than to each other; posterior row strongly recurved, eyes about equal in size; median separated by less than the diameter of one of them, a little farther from the lateral; posterior median twice the diameter of the anterior median; median ocular area broader posteriorly than long. *Clypeus* with a broad, median, dark band the width of the anterior row of eyes; height of clypeus equals about two and one-half diameters of an anterior median eye. *Chelicera* dark brown clothed with long, white hairs; lower margin of the furrow with four teeth. *Abdomen* above dull yellow, finely reticulated and marked basally with a median, lanceolate stripe very slightly darker; sides dusky yellow; venter lighter with two lines of minute, brown dots extending from epigastric furrow to spinnerets. *Legs* light yellowish brown above, about the color of the cephalothorax and clothed similiarly with white hairs; below lighter, particularly the coxae, trochanters and basal parts of the femora;

tibiae of the first and second legs beneath armed with 2–2–2–2 spines, the apical short, others long and overlapping; metatarsi with 2-2-1 spines, apical short. *Labium* and endites orange-yellow, lighter distally.

The male has not been described.

Synonymy

Micrommata pinicola Hentz, Bost. Jour. Nat. Hist., 1850, 6:287, pl. 10, fig. 14
Micrommata pinicola Hentz, Proc. Bost. Soc. Nat. Hist., 1867, 11:104
Micrommata pinicola Hentz, Occ. Papers Bost. Soc. Nat. Hist., 2, 1875, p. 60, pl. 17; fig. 14
Micrommata pinicola, Marx, Proc. U. S. Nat. Mus., 1890, 12:560 (Refers it to the genus Oxyale)
Dolomedes albineus, Banks, Proc. Acad. Nat. Sci. Phila., 1904, 56:136
Thaumasia pinicola Banks, Bul. 72, U. S. Nat. Mus., 1910, p. 54
Thaumasia pinicola Petrunkevitch, Bul. Amer. Mus. Nat. Hist., 1911, 29:547
Dolomedes pinicola, Comstock, The Spider Book, N. Y., 1912, p. 617, fig. 710

Remarks. Hentz not only figures the spider from above but shows clearly the arrangement of the eyes and the distinctive shape of the abdomen which is widest beyond the middle of its length. The venter of the abdomen in Banks's specimen as in Hentz's description, has two lines of minute, brown dots, extending from the epigastric furrow to the spinnerets. Mr Banks, of the Museum of Comparative Zoology, kindly loaned me for study the only known specimen which he collected in Florida.

Habits. In Scudder's Supplement to Hentz's *Araneides* of the United States,[1] there is a note giving the following information: "..... found March 22, wandering on the trunks of trees like Thomisus." Apparently nothing further is known of the habits of this species.

Distribution. South Alabama, *Punta Gorda, Fla.

THAUMASIA Perty

Del. Anim. Art. Brazil, 1833, p. 192, pl. 38, fig. 5

Cephalothorax only slightly longer than broad, somewhat flattened above but with a well-marked posterior declivity. *Eyes* in two rows, the anterior slightly procurved or straight; median eyes of anterior row larger than lateral and closer to them than to each other; posterior row recurved, eyes about equal in size and somewhat larger

[1] Proc. Bost. Soc. Nat. Hist., 1867, 11:104.

than those of anterior row; posterior median about their diameter apart, a little farther from the lateral; median ocular area a little broader posteriorly than long (pl. 37, fig. 3). Width of *clypeus* varying from two to three diameters of an anterior median eye. Lower margin of furrow of chelicera with three teeth, the last somewhat remote (pl. 37, fig. 2). *Abdomen* oval, longer than broad, widest at middle of its length. *Legs* 4-(1-2)-3 or (1-2)-4-3; long, moderately slender and armed below on tibiae and metatarsi of first and second legs with 2-2-2-2 and 2-2-2-1 spines, respectively. Paired spines of metatarsi long and overlapping; apical spine short. The anterior segment of the superior lorum of the pedicle is gently rounded behind and fits the shallow excavation of the posterior segment; lateral sclerites well developed and extending the entire length of both median segments (pl. 37, fig. 4).

Type of the genus, Thaumasia senilis Perty

Thaumasia Perty, Del. Anim. Art. Brazil, 1833, p. 192, pl. 38, fig. 5
Thaumasia Simon, Hist. Nat. Araignées, 1898, 2:313
Thaumasia Pickard-Cambridge, Biol. Cent. Amer. Arach., 1902, 2:308–309

Thaumasia peregrinus nov. sp.

Type: A mature female, no. 9427, in collection of the New York State Museum
Type locality: Hot Springs, Ark., June 27, 1901
Female (alcohol): length 19mm; legs 4-(1-2)-3; 44-(43-43)-35mm; pl. 36; pl. 37, figs. 1-4

Cephalothorax light brown above bordered by a light yellow, marginal band which extends from the sides of the clypeus to posterior margin. Short, dark brown hairs clothe the dark areas and light yellow hairs the lateral bands. Curved, light lines, extending from the posterior lateral eyes to dorsal groove, inclose an oval area. *Eyes*: anterior eyes in a straight line; median, separated by a little less than the diameter of one of them, slightly larger than lateral and closer to them than to each other. Posterior eyes equal in size and about one-fourth larger than anterior median. Median ocular area almost as long as wide posteriorly. *Clypeus* dark brown with a median, vertical, light bar; its width equals the height of the median ocular area. *Chelicera* mottled with dark brown at base, light yellow distally, and clothed with mixed brown and yellow hairs; lower margin of furrow armed with three teeth, two of which are almost contiguous, the third somewhat remote. *Abdomen* above with a broad, dull brown band sharply constricted just beyond the middle of its length, and a basal, median, light mark. An-

teriorly, on each side of the middle, narrow, light lines extend to a transverse cresent-shaped mark in front of constriction; dorsal band bordered by light yellow; sides dusky yellow, darker towards tip of abdomen. Venter yellow; lighter in a narrow, median stripe. *Legs* reddish brown with interrupted darker bands on femora; below, uniform brownish except femora and coxae which are lighter. *Sternum* dusky yellow with three indistinct grayish spots on each side; it is prolonged posteriorly between the hind coxae. *Labium* longer than broad, reddish brown at base, lighter distally. *Endites* yellow. *Epigynum;* the lateral lobes are somewhat convex, slightly longer than broad and meet on the middle line anteriorly; the external openings are beneath the posterior free margins (pl. 37, fig. 1).

Male unknown.

Remarks. This species undoubtedly belongs in the genus Thaumasia, as defined by Simon and Cambridge but resembles Dolomedes in general appearance. The armature of the legs and lower margin of the furrow of the chelicera and the arrangement of the eyes and suture of the superior lorum of the pedicle is characteristic of the genus and quite sufficient for identification. This species is considerably larger than most of the described members of the genus and outside the normal range, other species being confined to subtropical or tropical regions.

EXPLANATION OF PLATES

Plate 1

65

Thanatidius dubius (Hentz) adult female. x 4

Plate 1

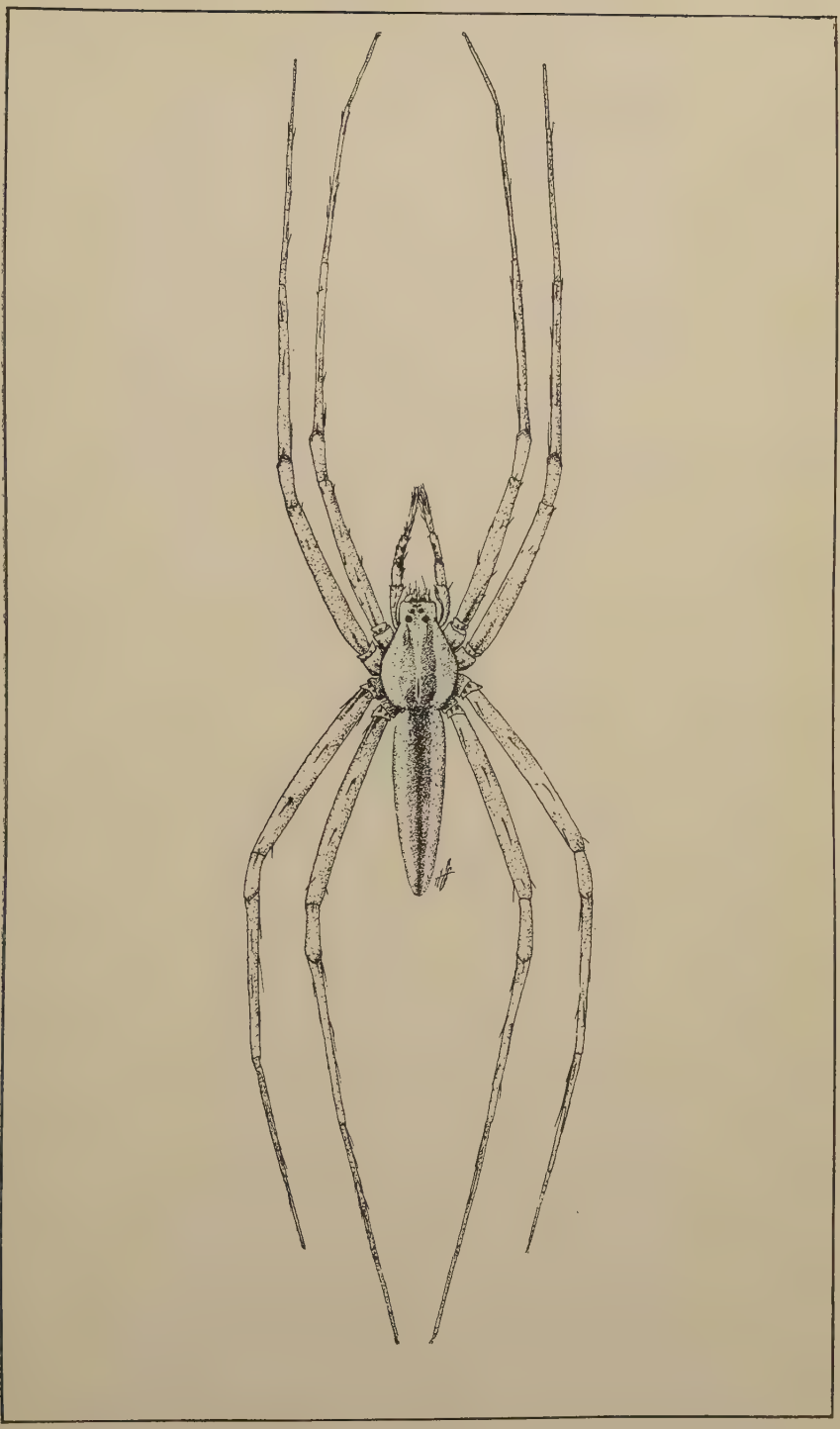


Plate 2

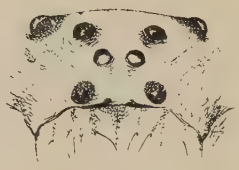
67

Thanatidius tenuis (Hentz)

Fig. 1 Epigynum
Fig. 2 Eyes from in front
Fig. 3 Adult female from above. x3
Fig. 4 Superior lorum of the pedicle
Fig. 5 Claw and lower margin of the furrow of the chelicera

Plate 2

1



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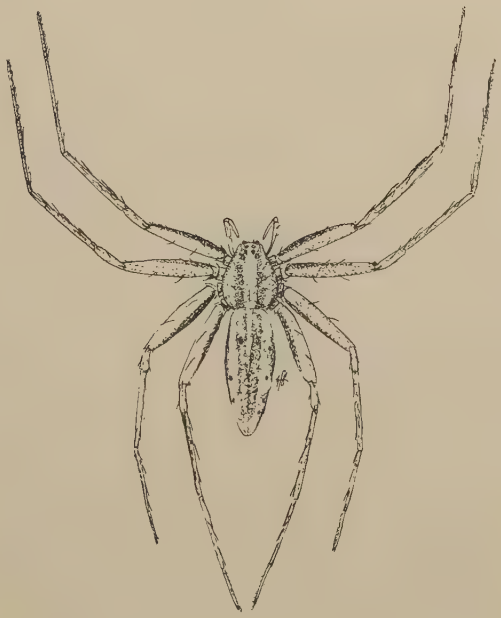

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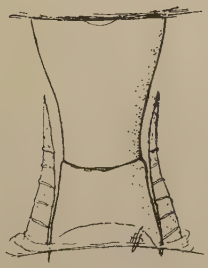

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Plate 3

Pelopatis undulata (Keyserling)

Fig. 1 Female. x 2
Fig. 2 Male. x 2

Plate 3

1

2

Plate 4

Pelopatis undulata (Keyserling)

Fig. 1 Palpal organ of male
Fig. 2 Eyes and chelicera
Fig. 3 Epigynum of the mature female figured in plate 3
Fig. 4 Claw and lower margin of the furrow of the chelicera
Fig. 5 Superior lorum of the pedicle

Plate 4

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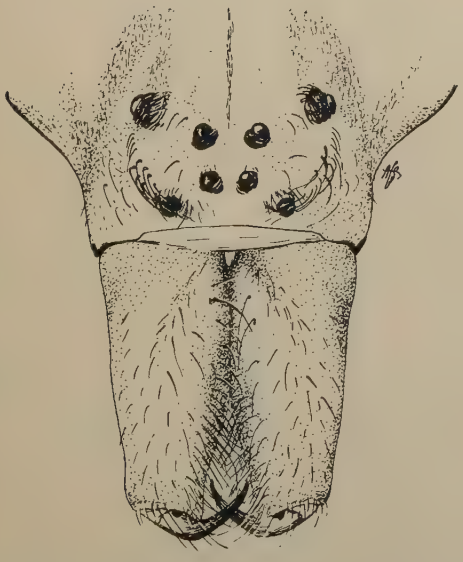

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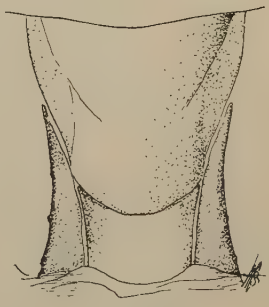

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Plate 5

73

Pisaurina mira (Walckenaer)

Fig. 1 Adult female. x 2. Typical color pattern
Fig. 2 Adult male. x 2. Typical color pattern

Plate 5

1

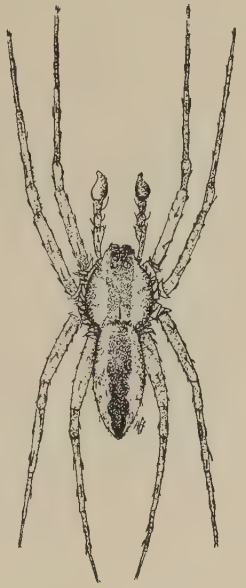

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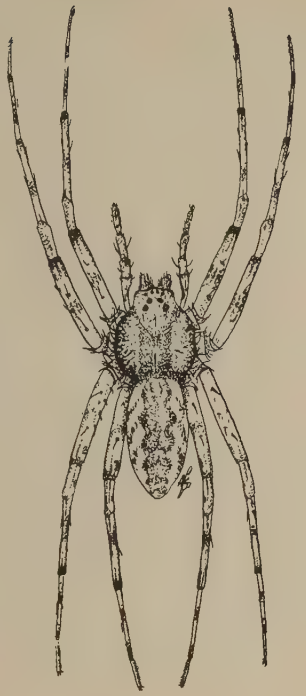
Plate 6

Pisaurina mira (Walckenaer)

Fig. 1 Adult female. x 2. A color variety with an indication of the pattern of P. mira var. subinflata

Fig. 2 Adult female. x 2. Dark variety



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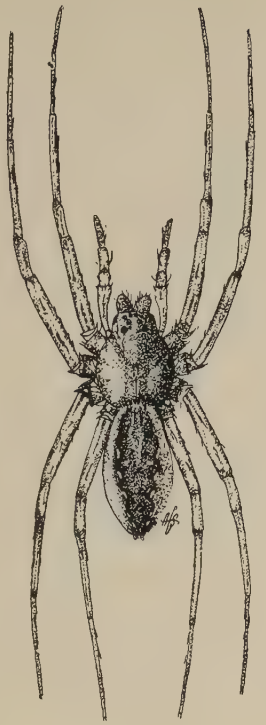

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Plate 7

77

Fig. 1 Pisaurina mira var. subinflata female. x 2.
Fig. 2 Pisaurina brevipes Emerson female. x 3

Plate 7

1

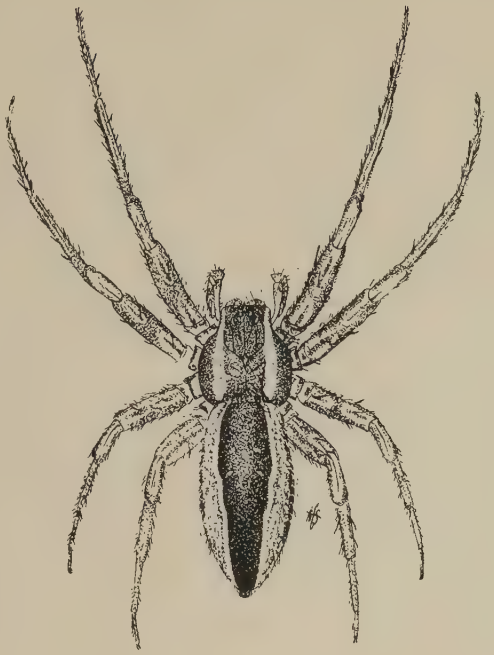

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Plate 8

79

Pisaurina mira (Walckenaer)

Fig. 1 Female carrying egg sac (enlarged)

Fig. 2 Female, dark variety, with the abdomen distended with eggs (natural size)

Fig. 3 Female, typical variety, removed from nursery and carrying a recently made egg sac (natural size)

Fig. 4 Female, dark variety, removed from nursery and carrying egg sac (natural size)

Plate 8

1

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Plate 9

Pisaurina mira (Walckenaer)

Fig. 1 Palpal organ of male
Fig. 2 Superior lorum of the pedicle
Fig. 3 Claw and lower margin of the furrow of the chelicera.
Fig. 4 Eyes of female
Fig. 5 Epigynum of typical variety
Fig. 6 Epigynum of Pisaurina mira var. subinflata

1

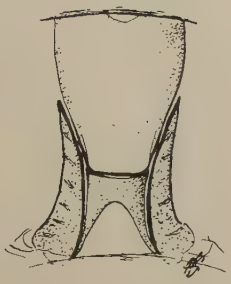

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Plate 10

Fig. 1 The beginning of the nursery of Pisaurina mira (Walckenaer). Leaflets of poison ivy (Rhus) pulled together and fastened with a few strands of silk

Fig. 2 The nursery (female and egg sac inside) with a silken floor spun across the opening between the leaflets

Plate 10

Plate 11

A late season nursery of Pisaurina mira (Walckenaer) expanded to accommodate hatching young. Photo by J. H. Comstock

Plate 11

Plate 12

87

Dolomedes albineus Hentz, female. x 2

Plate 12

Plate 13

89

Dolomedes albineus Hentz, male. x 2

Plate 13

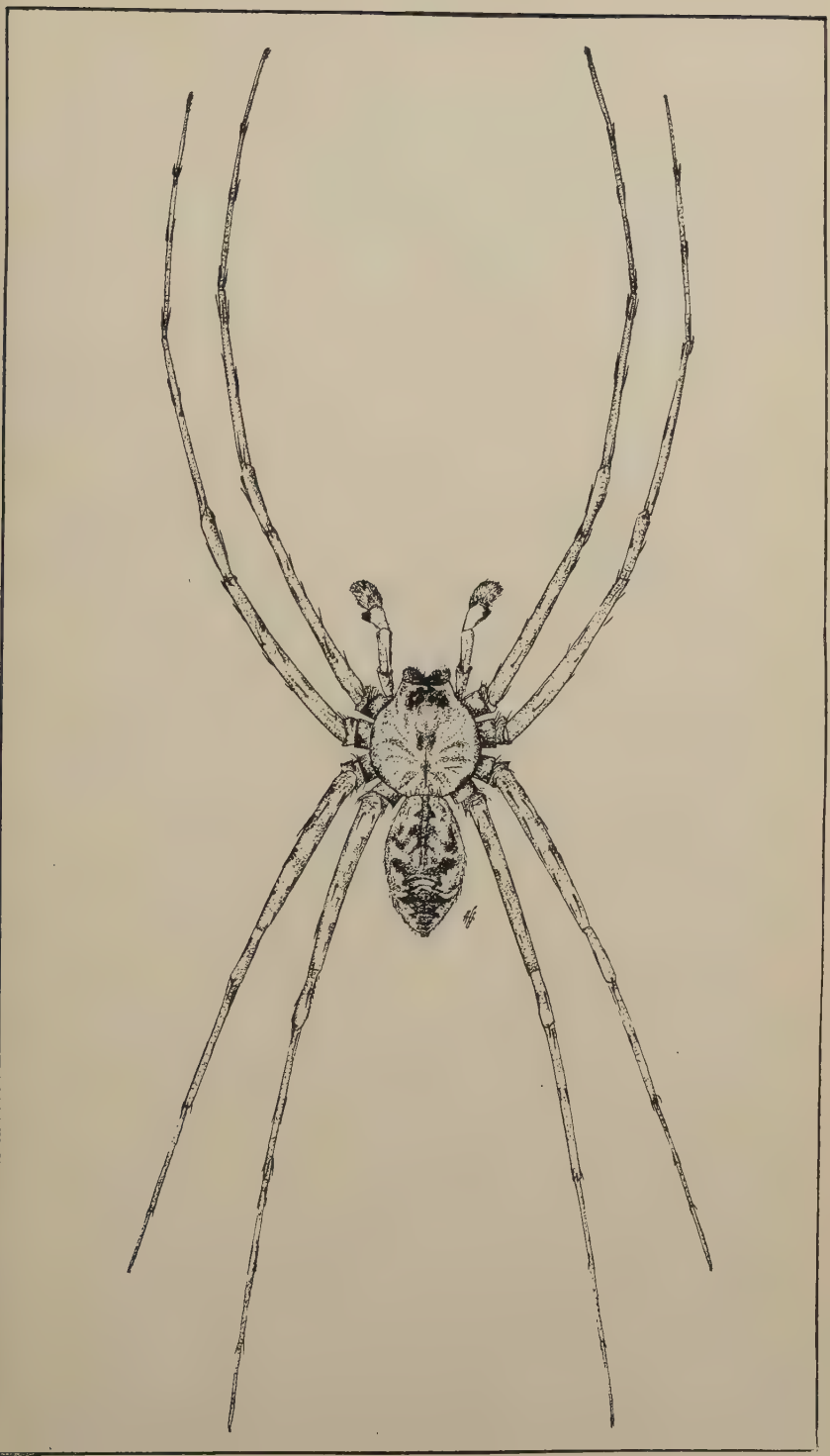

Plate 14

Dolomedes albineus Hentz

Fig. 1 Palpal organ of male
Fig. 2 Epigynum
Fig. 3 Venter of abdomen of female

Plate 14

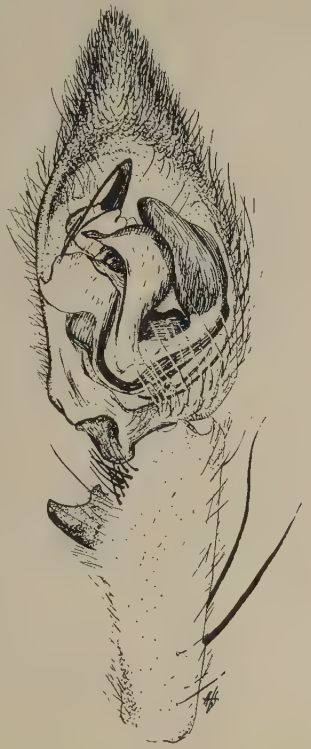

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Plate 15

Habitat of Dolomedes albineus Hentz. Upper reaches of the Suwanee river near its source in the Okefinokee swamp, Ga. The spiders cling to the bark of the cypress and tupelo trees, run freely over the surface of the water or dive beneath and cling to submerged objects to escape their enemies.

Plate 15

Plate 16

Dolomedes urinator Hentz, female. x 2

Plate 16

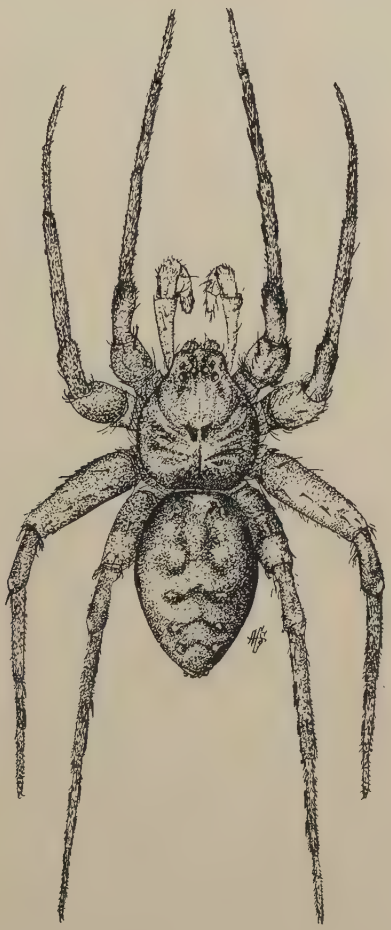

Plate 17

97

Dolomedes okefinokensis nov. sp., female. x 2

Plate 17

Plate 18

Fig. 1 Dolomedes okefinokensis nov. sp., male. x 2
Fig. 2 Dolomedes tenebrosus Hentz, male. x 2

Plate 18

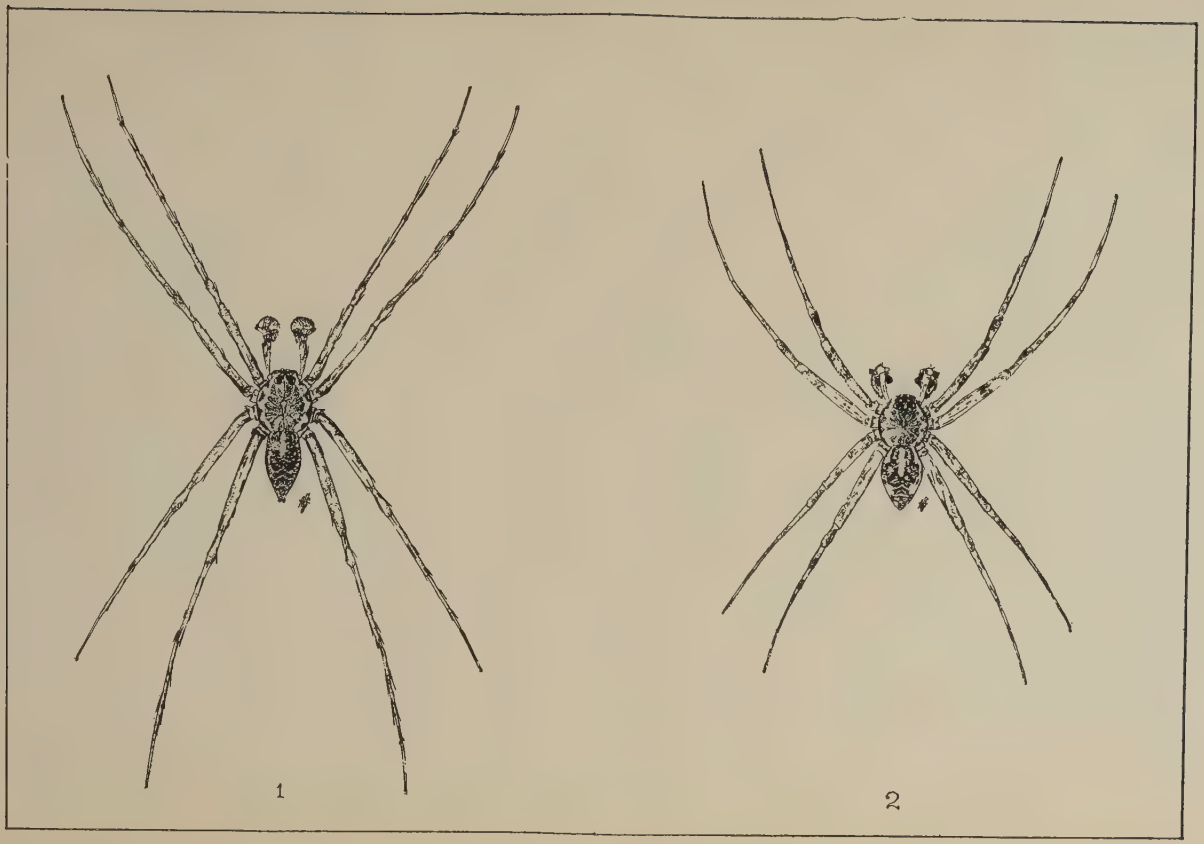

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Plate 19

Fig. 1 Palpal organ of male of Dolomedes okefinokensis nov. sp.

Fig. 2 Epigynum of Dolomedes okefinokensis nov. sp.

Fig. 3 Epigynum of Dolomedes fulviatronotatus nov. sp.

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Plate 20

Dolomedes tenebrosus Hentz, female. x 2

Plate 20

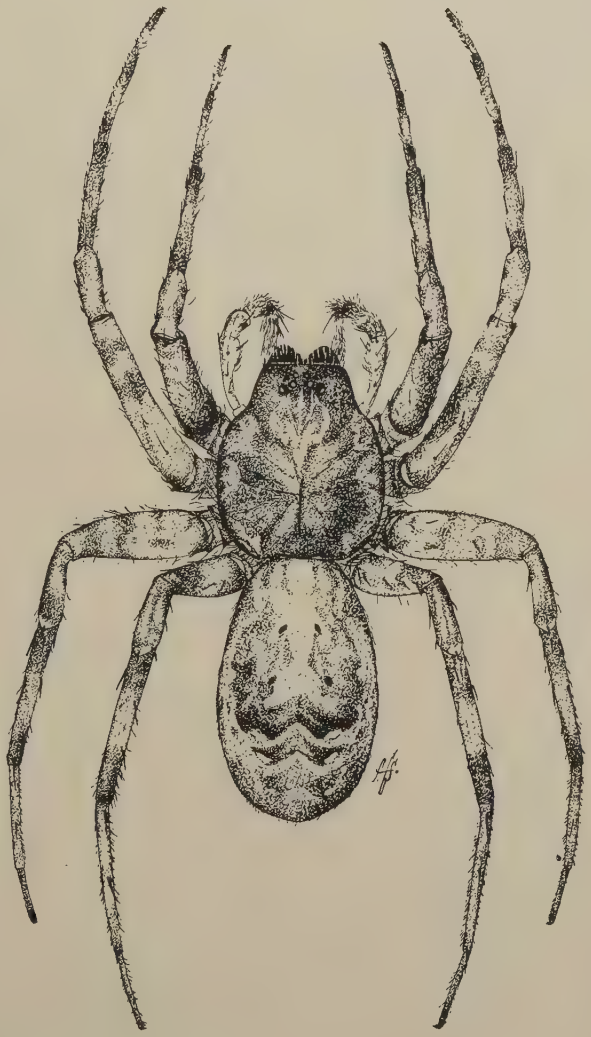

Plate 21

105

Dolomedes tenebrosus Hentz

Fig. 1 Palpal organ of male
Fig. 2 Epigynum
Fig. 3 Claw and lower margin of the furrow of the chelicera
Fig. 4 Eyes of female
Fig. 5 Superior lorum of the pedicle

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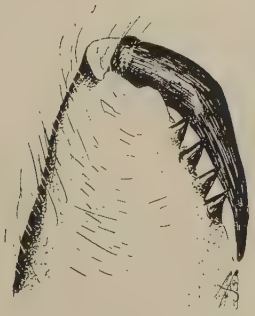

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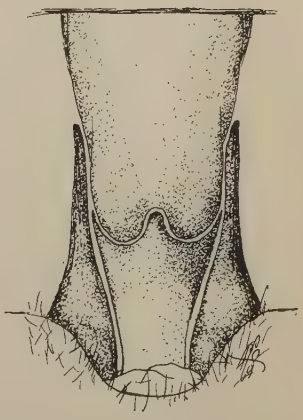

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Plate 22

107

Dolomedes scriptus Hentz, female. x 2

Plate 22

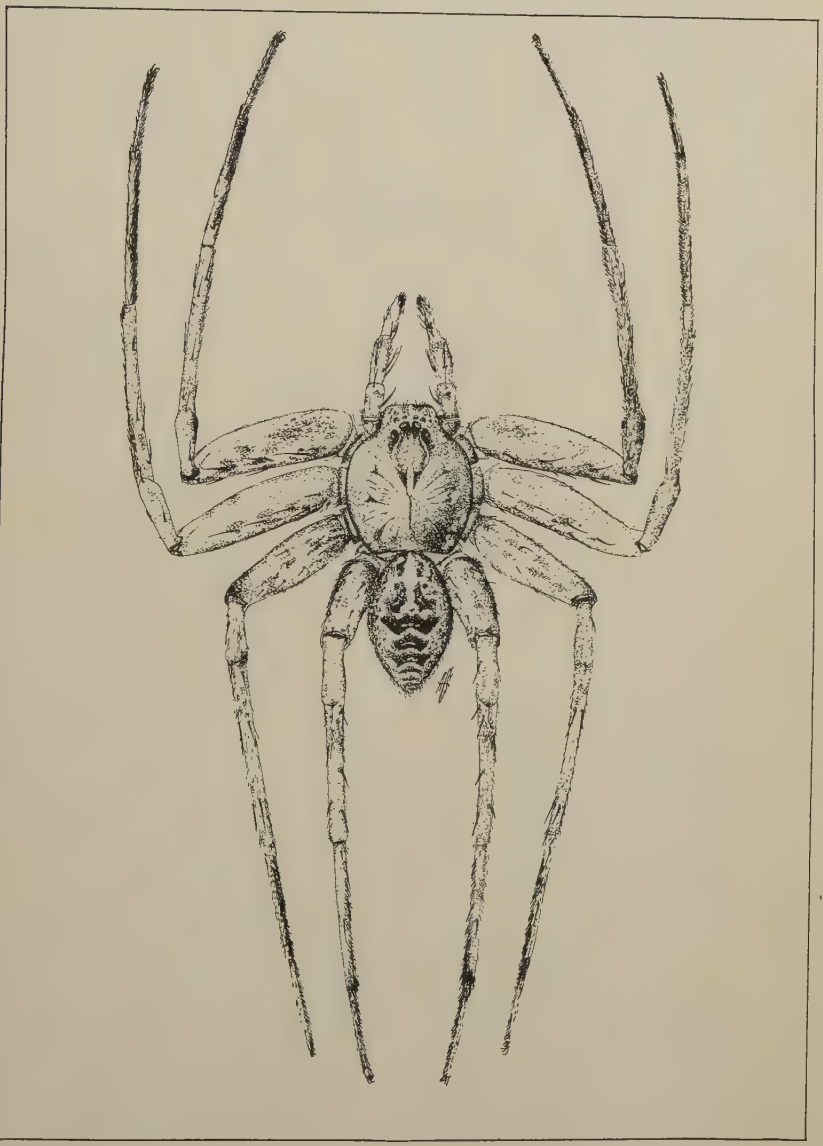

Plate 23

Dolomedes scriptus Hentz, male. x 2

Plate 23

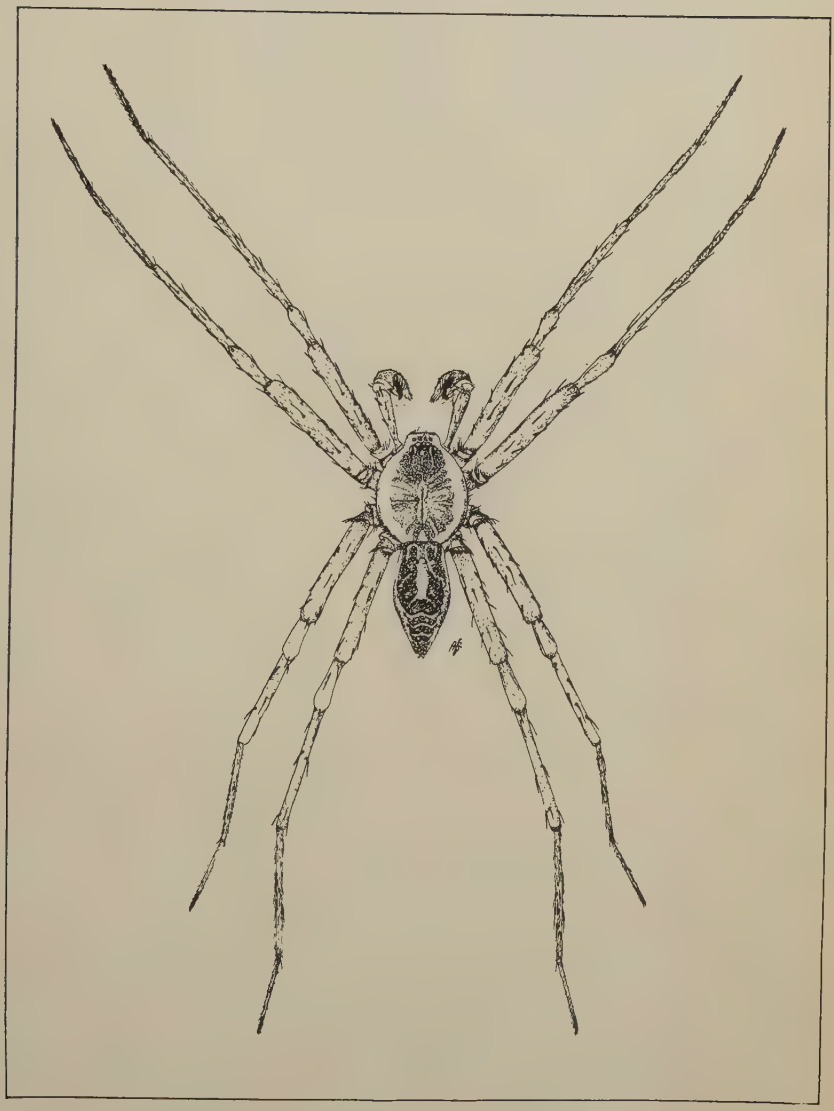

Plate 24

111

Fig. 1 Palpal organ of Dolomedes scriptus Hentz
Fig. 2 Epigynum of Dolomedes scriptus Hentz
Fig. 3 Epigynum of Dolomedes vittatus Walckenaer
Fig. 4 Palpal organ of male of Dolomedes vittatus Walckenaer

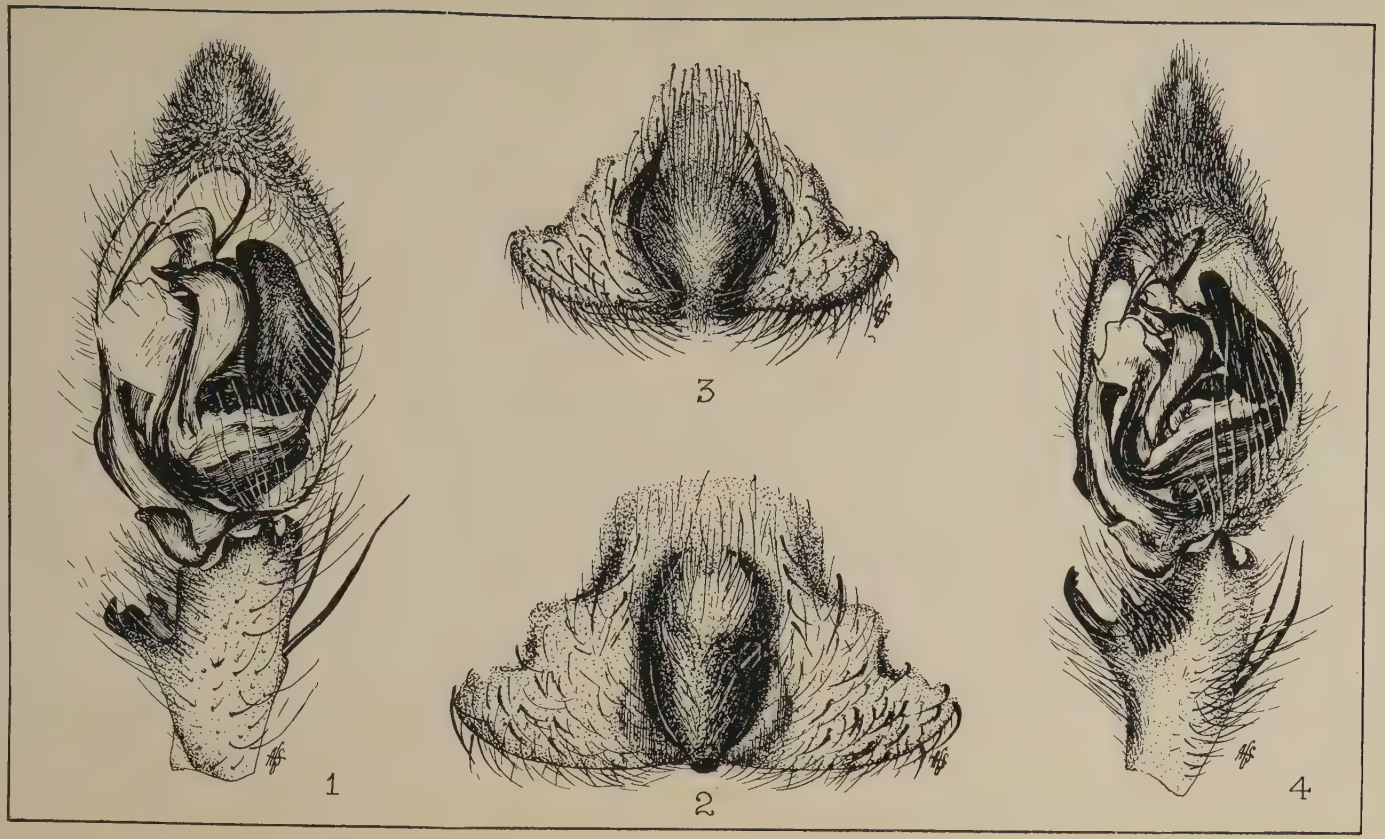
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Plate 25

Dolomedes vittatus Walckenaer, female. x 2

Plate 25

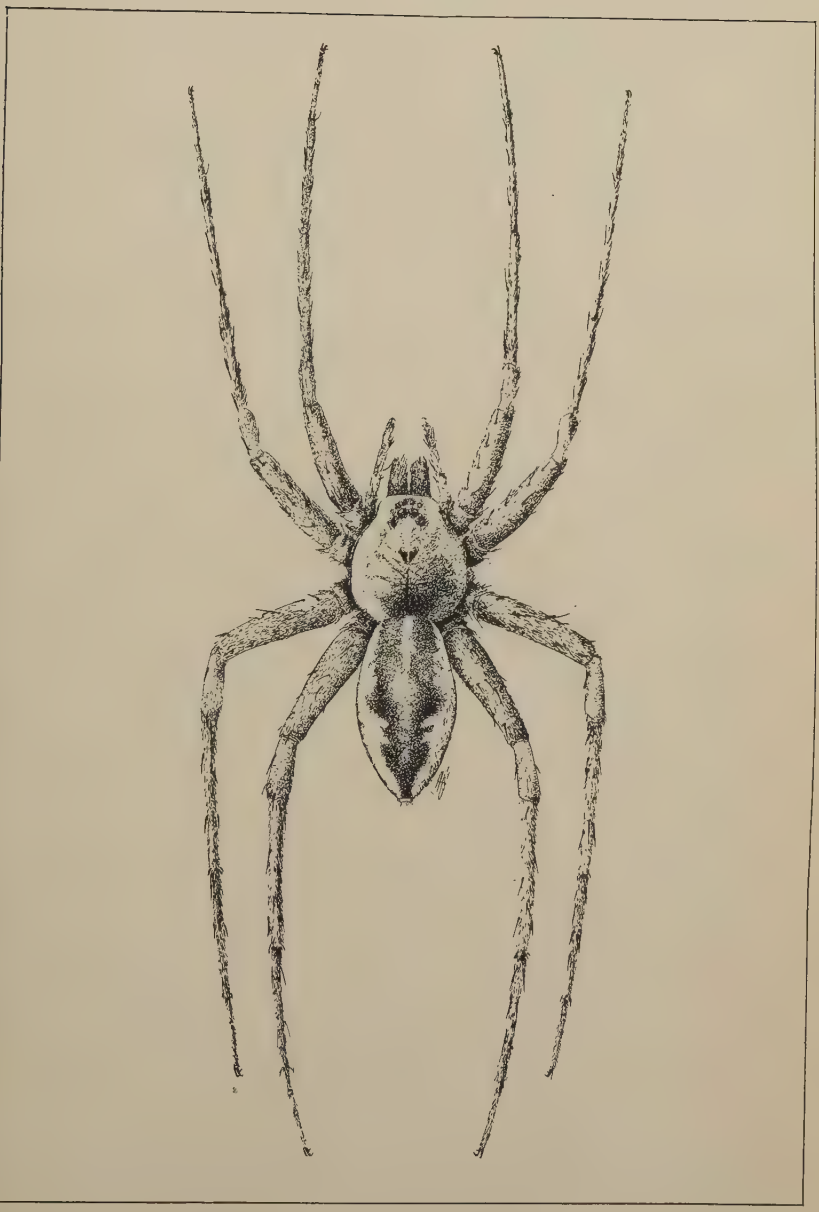

Plate 26

Dolomedes vittatus Walckenaer, male. x 2

Plate 26

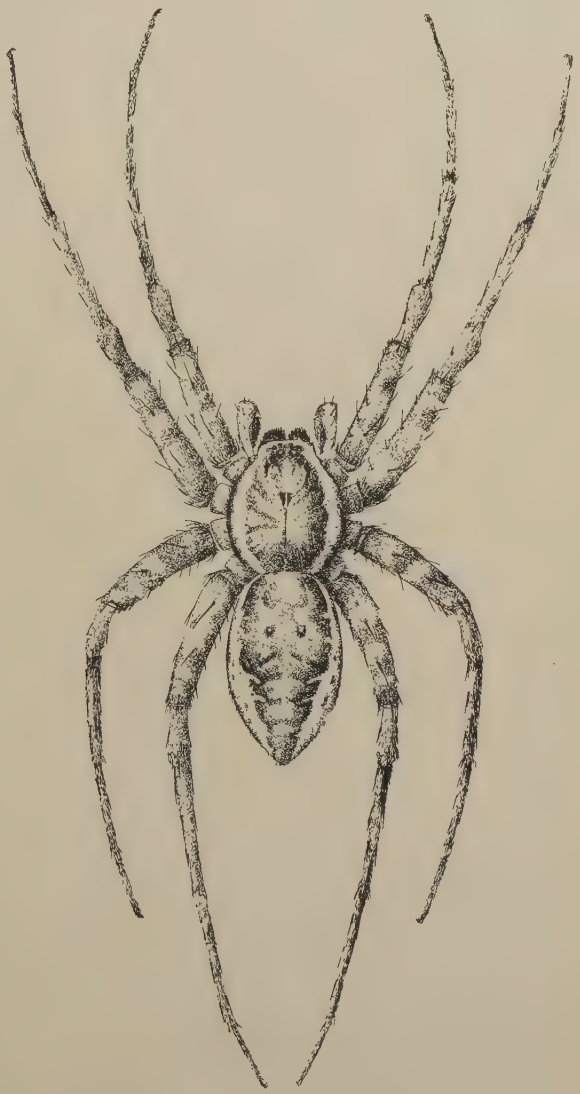

Plate 27

Dolomedes triton triton (Walckenaer) female. x 2

Plate 27

Plate 28

119

Dolomedes triton triton (Walckenaer) male. x 2

Plate 28

Plate 29

121

Fig. 1 Dolomedes triton sexpunctatus, female. x 2
Fig. 2 Dolomedes triton sexpunctatus, male. x 2

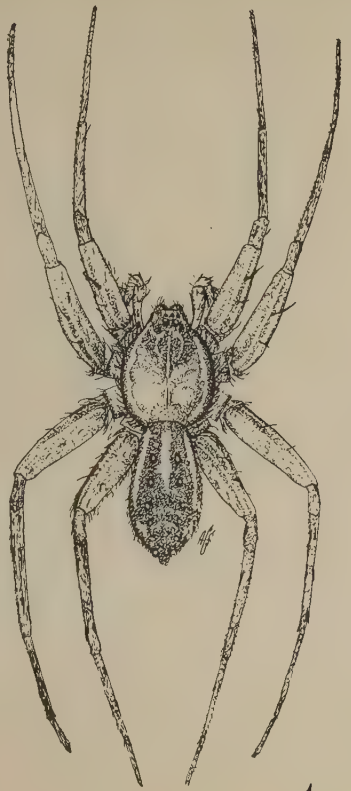

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Plate 30

123

Dolomedes triton triton Walckenaer

Fig. 1 Palpal organ of male
Fig. 2 Epigynum
Fig. 3 Eyes of female
Fig. 4 Femur of fourth leg of male showing the spinose hump

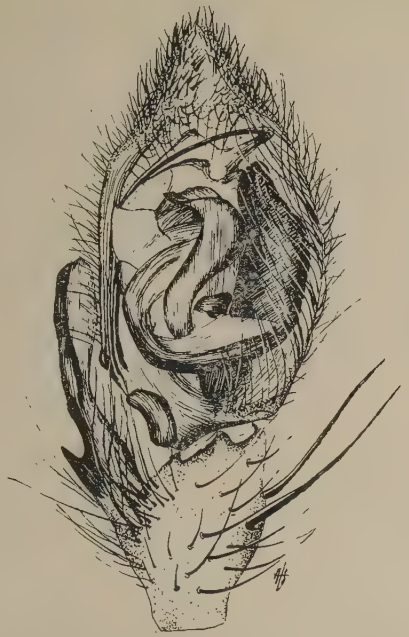

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Plate 31

Habitat of Dolomedes triton triton (Walckenaer) A "run" between lakes in the Okefinokee swamp, Ga., filled with lily pads and bordered by cypress trees festooned with "Spanish moss."

Plate 32

127

Dolomedes albiclavius nov. sp., female. x 2.

Plate 32

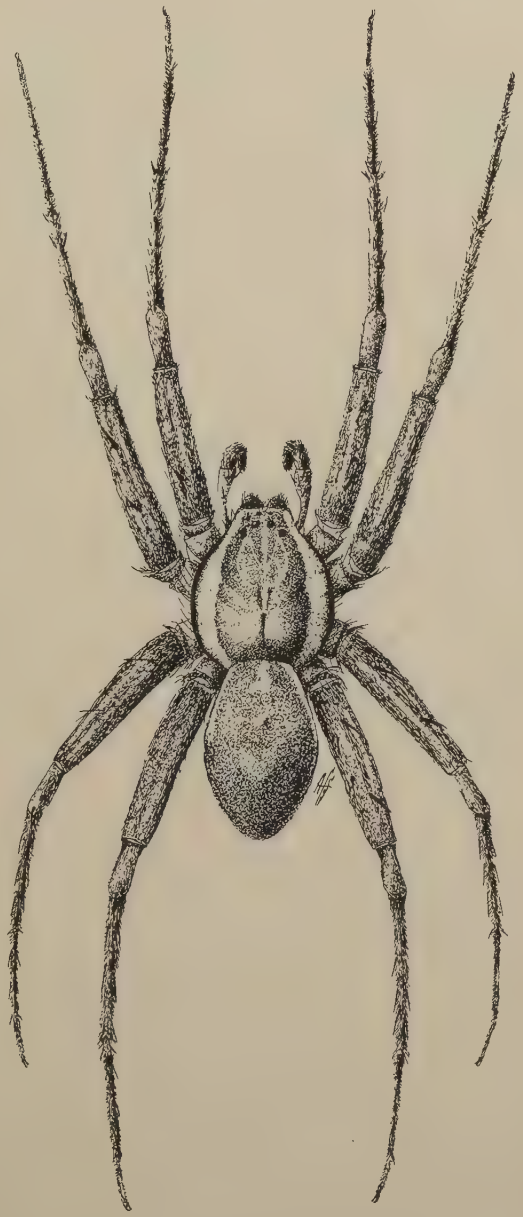

Plate 33

Fig. 1 Epigynum of Dolomedes striatus Giebel
Fig. 2 Epigynum of Thanatidius dubius Hentz
Fig. 3 Epigynum of Dolomedes urinator Hentz
Fig. 4 Epigynum of Dolomedes albiclavius nov. sp.
Fig. 5 Epigynum of Pisaurina brevipes (Emerton)

Plate 33

1

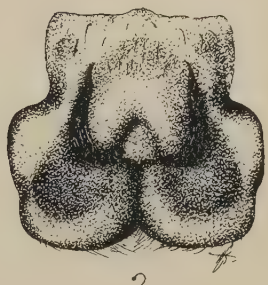

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Plate 34

131

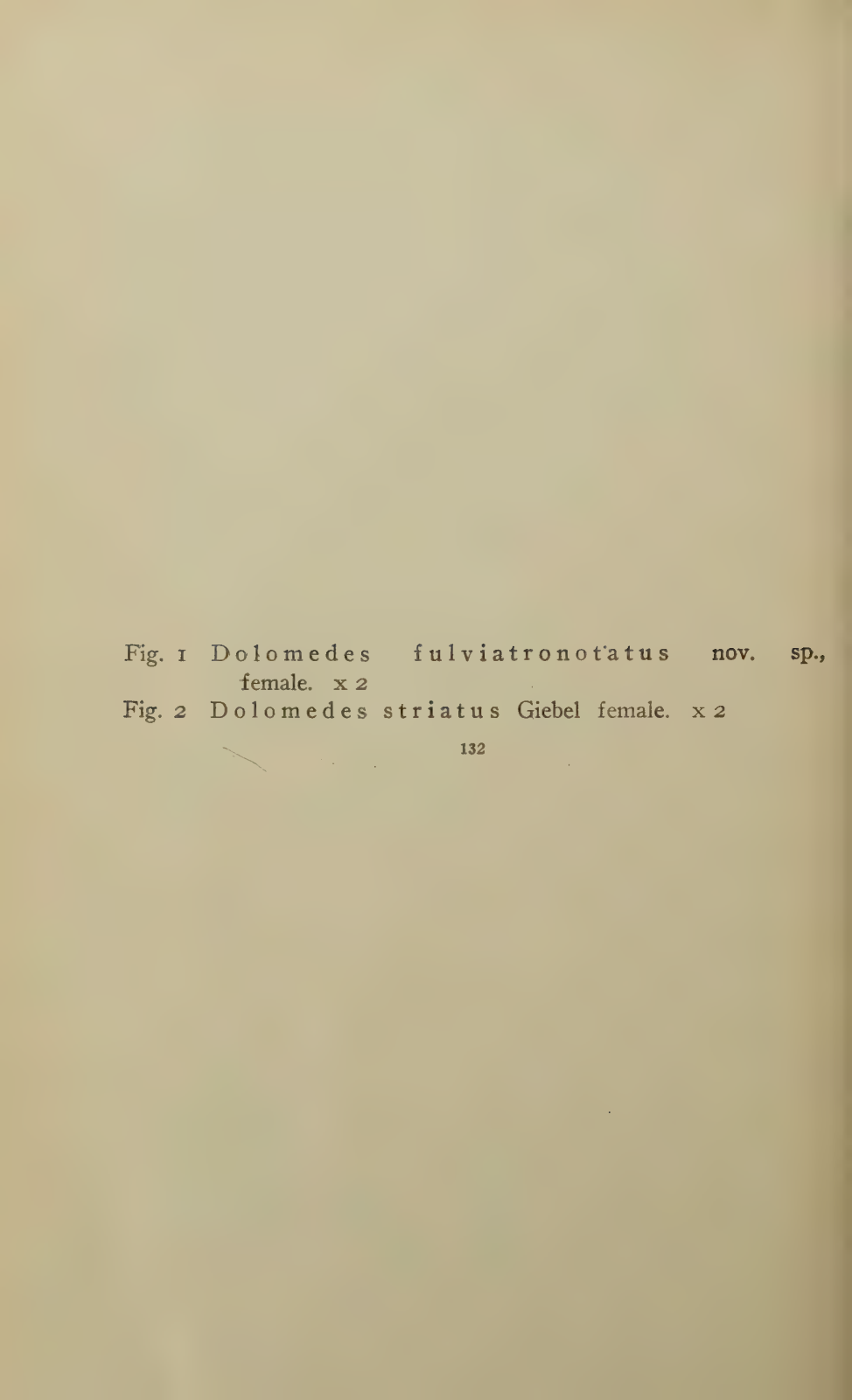


Fig. 1 Dolomedes fulviatronotatus nov. sp., female. x 2
Fig. 2 Dolomedes striatus Giebel female. x 2

1

2

Plate 35

Dolomedes pinicola (Hentz), female. x 2

Plate 35

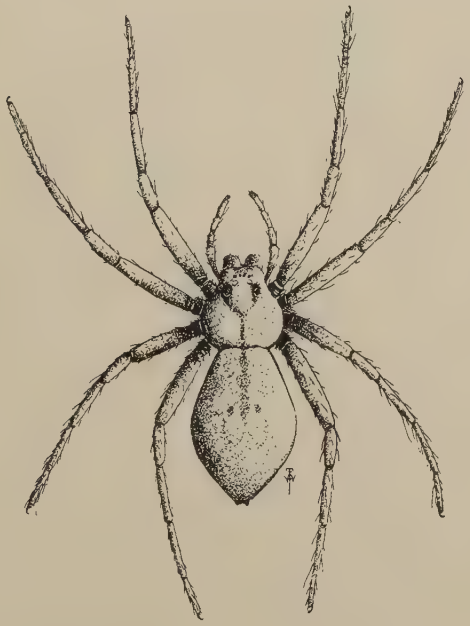


Plate 36

135

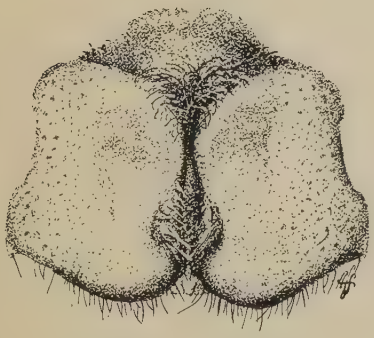
Thaumasia peregrinus nov. sp., female. x 2

Plate 37

137

Thaumasia peregrinus nov. sp.

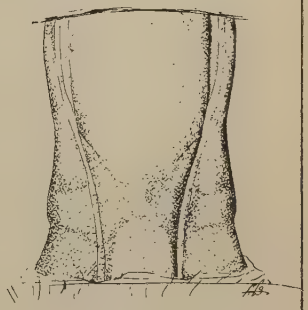
Fig. 1 Epigynum
Fig. 2 Claw and lower margin of the furrow of the chelicera
Fig. 3 Eyes of female
Fig. 4 Superior lorum of the pedicle



1

2

3



4

INDEX

Page numbers referring to descriptions are printed in black face type.

Abbott, John Thomas, drawings by, 5, 11, 12, 35; cited, 52
Acknowledgments, 6
Aldrich, Dr J. M., acknowledgment to, 6
Alexander, Dr Charles P., acknowledgment to, 6
Aranea rufa, 11, 12

Banks, Nathan, acknowledgment to, 6, 61; cited, 11, 14, 35, 46, 49
Barrows, William, acknowledgment to, 6
Berland, Dr L., acknowledgment to, 6, 19
Blanchard, Dr Frank N., acknowledgment to, 6

Cambridge, cited, 12, 20, 63
Chamberlin, Dr R. V., acknowledgment to, 6; cited, 11
Chrisp, Hugh P., acknowledgment to, 6
Comstock, J. H., acknowledgment to, 6; cited, 14, 54
Crosby, C. R., acknowledgment to, 6

De Geer, species of, 11; cited, 35
Dolomedes, 16, **30**
  aerugineus, 12
  albiclavius, 32, **56**
  albineus, 32, **33**
  binotatus, 12
  convexus, 14
  fontanus, 13
  fulviatronotatus, 32, **59**
  hastulatus, 13
  idoneus, 15
  lanceolatus, 11, 13
  lineatus, 11
  marginellus, 13
  mirus, 12
  oblongus, 12
  okefinokensis, 32, 33, **38**
  pinicola, **60**
  rufus, 12
  scapularis, 12
  scriptus, 12, 13, 15, 32, 33, **44**
  sexpunctatus, 11, 13, 14, 15
  striatus, 14, 15, 32, **57**
  tenax, 13
  tenebrosus, 13, 15, 32, 33, **40**
  triton, 12, 13, 14, 15, 32, 33
  triton sexpunctatus, **52**
  triton triton, **50**, 55
  urinator, 13, 32, **36**
  vernalis, 15
  virgatus, 12
  vittatus, 11, 13, 15, 32, 33, **47**

Emerton, J. H., acknowledgment to, 6, 30; species described or mentioned by, 14; cited, 35, 42, 46, 49, 58
Ewing, H. E., acknowledgment to, 6
Explanation of plates, *follows page 63*

Fage, Louis, 20

Giebel, species of, 14

Harper, Francis, acknowledgment to, 6
Hartman, Fanny T., acknowledgment to, 6
Henshaw, Samuel, acknowledgment to, 6
Hentz, species of, 13
Hunter, Dr S. J., acknowledgment to, 6

Keyserling, species of, 15; cited, 15
Koch, C., species of, 12; cited, 35

Lutz, Dr F. E., acknowledgment to, 6
Lycosa punctulata, 11
  rabida, 11
  triton, 11
Lycosidae, 10

McCook, cited, 43
Maypacius floridanus, 5, 14, 15
Micrommata carolinensis, 14
  marmorata, 14
  pinicola, 14
  serrata, 14
  subinflata, 14, 25
  undata, 14
Montgomery, species described or mentioned by, 15; cited, 28, 42, 46, 49

Ocyale rufa, 12
  undata, 14, 15

Pelopatis, 16, **20**
  undulata, **21**
Petrunkevitch, cited, 11, 12, 13, 14, 35
Pisaura brevipes, 5
Pisaura (Dolomedes) mirabilis, 12
Pisauridae, 5, 7
  characters of family, 7
  descriptions of genera and species, 16–63
  family relationships, 9
  key to genera, 16
  list of species, 11
  references to literature, 10
  subdivisions, 16
Pisaurina, 16, **22**
  brevipes, 23, **29**
  mira, 12, 14, 15, **23**
    var. subinflata, **28**
Plates, explanation, *follows page 63*
Podophthalmidae, 10

Schoonmaker, W. J., acknowledgment to, 6
Shoemaker, C. R., acknowledgment to, 6
Simon, Eugene, acknowledgment to, 6, 19; species described or mentioned by, 15; cited, 13, 14, 18, 22, 35, 50, 63
Smith, Dr Eugene A., acknowledgment to, 6
Stryke, Anna Clegg, drawings by, 6

Tetragonophthalma undulata, 15
Thanatidius, 10, **16**
  dubius, 15, **17**
  tenuis, **18**
Thaumasia, 16, **61**.
  peregrinus, **62**
Thomisus? dubius, 14, 15
  tenuis, 14, 15
Thorell, T., cited, 30

Walckenaer, species of, 11; cited, 30, 35, 51
Wright, Dr A. H., acknowledgment to, 6